

# Pharmacy Enteral Tube Medication Review

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# Background: Enteral Tube Medication Errors

- Institute for Safe Medication Practices (ISMP) reports that medication errors related to enteral route of medication happen more often than reported or recognized<sup>1</sup>
- Enteral tube (ET) medication errors may be caused by<sup>1</sup>:
  - Incompatible route
  - Unsuitable dosage form selection
  - Incomplete absorption
  - Improper preparation
  - Improper administration technique
  - Incompatibility with nutrition formula

# Background: Enteral Tube Medication Errors

- ET medication errors may lead to:
  - Obstruction of the feeding tube<sup>2</sup>
  - Increased morbidity<sup>3</sup>
  - Increased healthcare costs<sup>3</sup>
  - Patient harm<sup>2,4</sup>
  - Health risk for medical personnel<sup>5</sup>
- ISMP recommends every organization develop methods for ensuring safe administration of medications through enteral feeding tubes

# Medication Use Evaluation (MUE) – June 2017

- **Objective:** To evaluate the incidence of medications prescribed to patients with enteral feeding tubes which are potentially incompatible with administration via enteral tube.
- Patients were identified through a data pull using the following terms
  - “Tube feed”, “feeding bag”, “drain sponge”, “syringe”, and “PEG tube”
- Patient charts were reviewed for appropriateness of medications to be administered via enteral tube

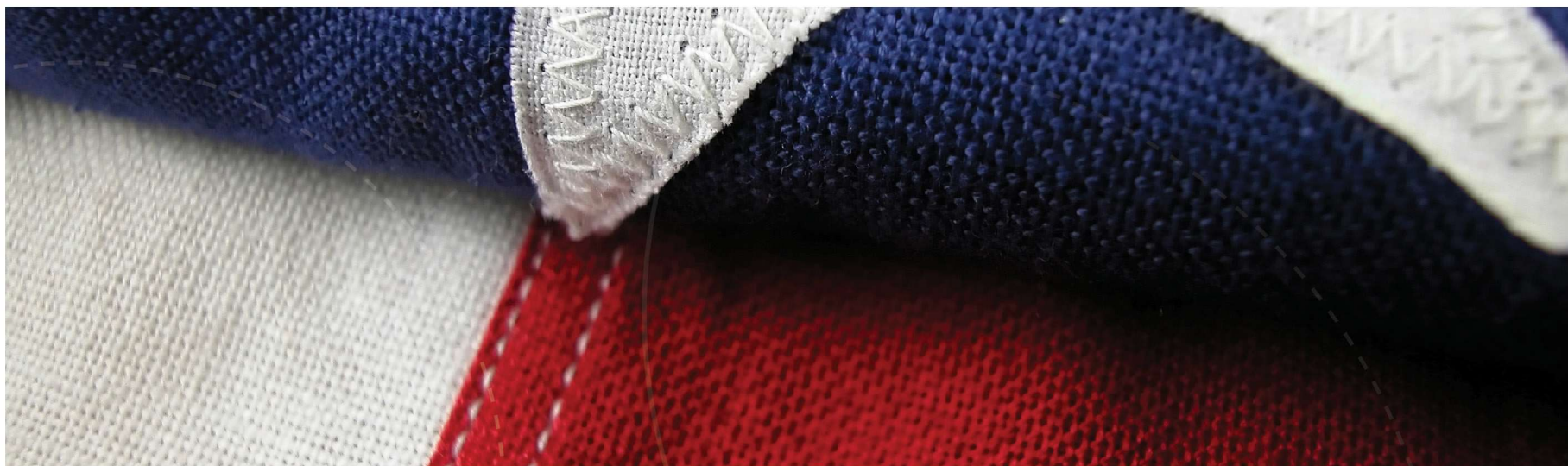
- **Results**

Number of patients identified via data pull	143
Number of inappropriate prescriptions ordered to be administered via enteral tube	6
Number of potentially inappropriate prescriptions ordered to be administered via enteral tube	6

# MUE Findings

- Patients at the KCVA requiring medication administration via enteral feeding tubes have received medications which are inappropriate or potentially inappropriate for this route.
- Limitations within our current system were identified and include:
  - CPRS does not identify patients that require enteral tube medication administration
  - Providers are not alerted to patient's need for enteral tube route of medication administration
  - Providers do not have the option to change route of administration from "oral" to "enteral tube" within CPRS order menu
  - Processing pharmacists are not alerted to patient's need for enteral tube route of medication administration and therefore cannot prospectively assess the safety and efficacy of ordered medications for administration via enteral tube route





# Enteral Tube Medication Administration Alert

# Enteral Tube Medication Administration Alert

- May be placed by any member of the healthcare team
- Will not expire
- Should be discontinued when no longer pertinent
  - When the patient is no longer using an enteral tube for medication administration
- Notifies prescribing providers when ordering medications
- Notifies pharmacists when processing prescription orders

# Enteral Tube Medication Administration Alert

CPRS → Orders → MISC → PEG Tube Order Set

Patient is Deceased: 2/19/2020

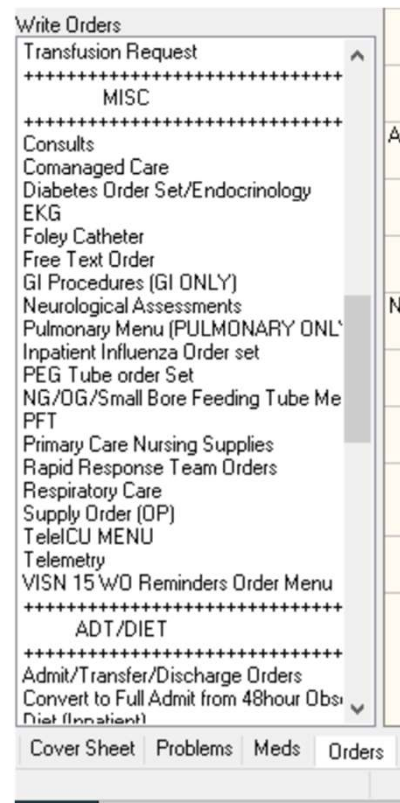
Service	Order	Start / Stop	Provider	Nurse
Life-Sustaining Treat	>>	Start: 09/03/20 12:41	Baig,Ahmed J	
	>> DNR: Do not attempt CPR in the event of cardiopulmonary arrest	Start: 09/03/20 12:41	Baig,Ahmed J	CLS
Nursing	>> Please teach patient and/or family tube feeding techniques.	Start: Mar 23,2021@11:30 Stop: Mar 26,2021	Dang,Veomany	
	>> Start IV of NS at TKO, titrate rate as needed during the peri-procedure period.	Start: 01/23/20	Smith,Brian	
	>> Please infuse 1 unit of RED CELLS. TRANSFUSE WHEN: Oct 7,2019@14:00 Start Date/Time: Oct 7,2019 Comments: (If IRRADIATED COMPONENTS NEEDED please note here.)	Start: 10/07/19 13:00	Norton,Melissa C	
	>> ISOLATION (KC) Type of isolation: Contact Precautions MRS Positive Test Start date: Mar 08, 2019@10:10	Start: 03/08/19 10:10	Busch,Terry Lucille	tsb
	>> KC SEIZURE PRECAUTIONS Seizure precautions if patient has history of alcohol withdrawal seizures. Inspect the patient's environment for safety hazards if a seizure would occur. Maintain IV access When a seizure begins note the start time, position patient safely, either on floor with head cradled (or on pillow) or in low-position bed with side rails raised and padded. Turn on side with head flexed slightly forward. Provide privacy and a quiet, non-stimulating environment Loosen patient's clothing Start date: Feb 26, 2018@15:10 Stop date: Mar 07, 2018@15:10	Start: 02/28/18 15:10 Stop: 03/07/18 15:10	Ridge,Todd A	
	>> VITAL SIGNS Check Vital Signs minimum every 4 hours or vitals every 2 hours times 3 after benzodiazepine dose. Call provider if: T>38.5, SBP>190 or <80, P>130 or <50, RR>30 or <8. Start date: Feb 26, 2018@15:10 Stop date: Mar 07, 2018@15:10	Start: 02/28/18 15:10 Stop: 03/07/18 15:10	Ridge,Todd A	BY
	>> ASPIRATION PRECAUTIONS Aspiration Precautions: Post an ASPIRATION PRECAUTIONS sign at HOB Post ASPIRATION PRECAUTIONS in kardex Post visitor/patient caution sign at HOB Set up suctioning: including suction canister, tubing, and Yankauer or suction catheter HOB elevated 30 degrees at all times HOB elevated 90 degrees when PO Follow prescribed diet and feeding/drinking procedures noted in kardex HOB elevated 60 degrees for one hour after meals Observe patient for coughing, choking, shortness of air, increased wet sounds in the throat, or facial grimacing, and other signs of struggle associated with swallowing. Contact the physician if any of these symptoms are observed. Also contact Speech Pathology if the speech pathologist has been involved	Start: 02/28/18 15:10 Stop: 03/07/18 15:10	Ridge,Todd A	SJR

Cover Sheet Problems Meds Orders Notes Consults Surgery D/C Summ Labs Reports



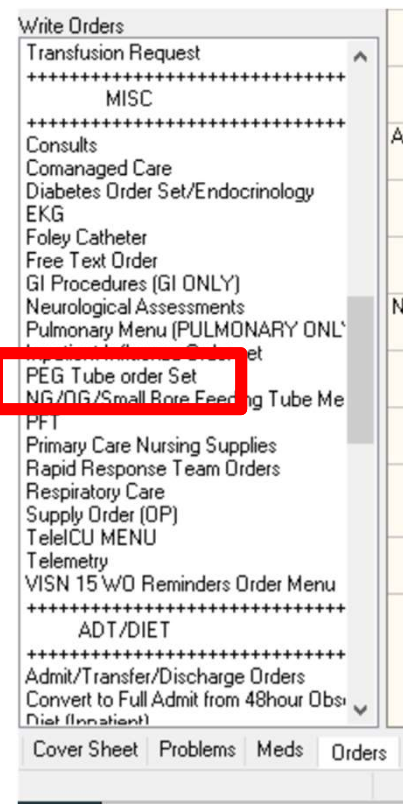
# Enteral Tube Medication Administration Alert

CPRS → Orders → MISC → PEG Tube Order Set



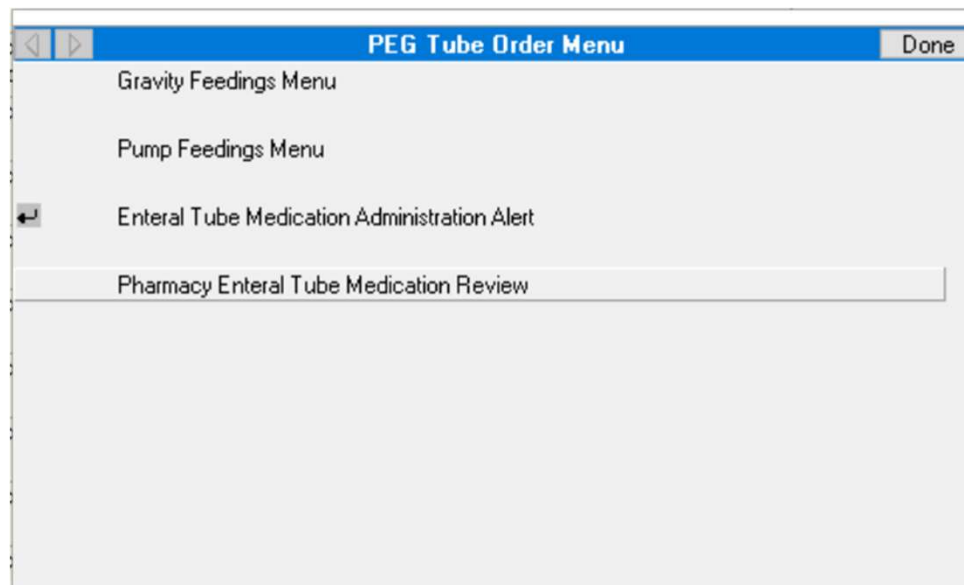
# Enteral Tube Medication Administration Alert

CPRS → Orders → MISC → PEG Tube Order Set



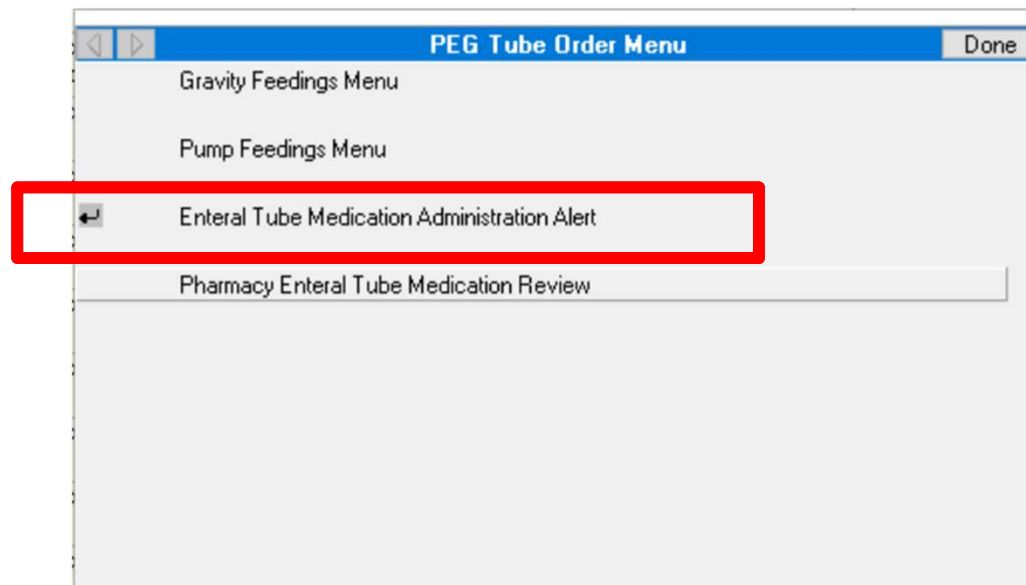
# Enteral Tube Medication Administration Alert

CPRS → Orders → MISC → PEG Tube Order Set → Enteral Tube Medication Administration Alert



# Enteral Tube Medication Administration Alert

CPRS → Orders → MISC → PEG Tube Order Set → Enteral Tube Medication Administration Alert



# Enteral Tube Medication Administration Alert

New Order

Order: PATIENT WITH ENTERAL FEEDING TUBE  
Start date: NOW (5/14/21@15:08)

Accept

Edit

Cancel



# Enteral Tube Medication Administration Alert

View Orders	Active Orders (includes Pending & Recent Activity) - ALL SERVICES	Start / Stop	Provider	Nurse
Active Orders (includes Pending & Recent)	Service Order			
	Life-Sustaining Treatr >>	Start: 09/03/20 12:41	Baig,Ahmed J	
	>> DNR: Do not attempt CPR in the event of cardiopulmonary arrest	Start: 09/03/20 12:41	Baig,Ahmed J	CLS
Write Delayed Orders				
Write Orders				
NEW NAT RETURN TO CLINIC ORC	Nursing >> PATIENT WITH ENTERAL FEEDING TUBE	Start: 05/18/21 08:58	Zicarelli,Paige L	
NAT RETURN TO CLINIC ORDER O	NOW			
*****	>> Please teach patient and/or family tube feeding techniques.	Start: Mar 23, 2021 @11:30	Dang,Veomany	
Self Alert (SA) Menu		Stop: Mar 26, 2021		
*****	>> Start IV of NS at TKO, titrate rate as needed during the peri-procedure period.	Start: 01/23/20	Smith,Brian	
ALLERGIES				
*****	>> Please infuse 1 units of RED CELLS. TRANSFUSE WHEN: Oct 7, 2019@14:00 Start Date/Time: Oct 7, 2019 Comments: (If IRRADIATED COMPONENTS NEEDED please note here.)	Start: 10/07/19 13:00	Norton,Melissa C	
Allergy/Adverse Reaction				
*****	>> ISOLATION (KC)	Start: 03/08/19 10:10	Busch,Terry Lucille	tsb
MEDICATIONS	Type of isolation: Contact Precautions MRS Positive Test			
Alcohol Withdrawal Menu	Start date: Mar 08, 2019@10:10			
Heparin Protocol	>> KC SEIZURE PRECAUTIONS	Start: 02/28/18 15:10	Ridge,Todd A	
Inpatient Influenza Vaccine	Seizure precautions if patient has history of alcohol withdrawal seizures.	Stop: 03/07/18 15:10		
Inpatient MEDS	Inspect the patient's environment for safety hazards if a seizure would occur			
ICU Medication Orders	Maintain IV access			
Insulin Infusion Orders (ICU/PCU only)	When a seizure begins note the start time, position patient safely, either on floor with head cradled (or on pillow) or in low-position bed with side rails raised and padded. Turn on side with head flexed slightly forward.			
IV Fluids	Provide privacy and a quiet, non-stimulating environment			
Non-VA Medications	Loosen patient's clothing			
Prior Approval/Nonformulary Request	Start date: Feb 28, 2018@15:10			
Outpatient Clinic Vaccines/Shots	Stop date: Mar 07, 2018@15:10			
Outpatient MEDS	>> VITAL SIGNS	Start: 02/28/18 15:10	Ridge,Todd A	BY
PCA/PCA & Basal Infusion/Basal Infus	Check Vital Signs minimum every 4 hours or vitals every 2 hours times 3 after benzodiazepine dose. Call provider if: T>38.5, SBP>190 or <80, P>130 or <50, RR>30 or <8.	Stop: 03/07/18 15:10		
Tobacco Cessation Medication INPT	Start date: Feb 28, 2018@15:10			
Pneumonia Order Menu	Stop date: Mar 07, 2018@15:10			
Sepsis	>> ASPIRATION PRECAUTIONS	Start: 02/28/18 15:10	Ridge,Todd A	SJR
UTI Order Menu (Inpatient)	Aspiration Precautions:	Stop: 03/07/18 15:10		
*****	Post an ASPIRATION PRECAUTIONS sign at HOB			
IN CLINIC MED ORDERS	Post ASPIRATION PRECAUTIONS in kardex			
*****	Post visitor/patient caution sign at HOB			
CBOC Meds	Set up suctioning: including suction canister, tubing, and Yankauer or suction catheter			
In-Clinic (IMO) Orders	HOB elevated 30 degrees at all times			
Oncology Orders	HOB elevated 90 degrees when PO			
Radiation Oncology	Follow prescribed diet and feeding/drinking procedures noted in kardex			
*****	HOB elevated 60 degrees for one hour after meals			
LAB/XRAY	Observe patient for coughing, choking, shortness of air, increased wet sounds in the throat, or facial grimacing, and other signs of			
*****				
Blood Gas				
Drug Screen				
Ionized Calcium				
Inpatient LAB				
Outpatient LAB				
INPT Radiology				
OUTPATIENT				
Cover Sheet	Problems	Med	Orders	Notes
	Consults	Surgery	D/C Summ	Labs
	Reports			

# Enteral Tube Medication Administration Alert

ed.va.gov) Outpatient Medications

SIMVASTATIN TAB Change

Dosage	Complex	Tier 1	Route	Schedule	<input type="checkbox"/> PRN
20MG	\$0.054		ORAL	QHS	
5MG		\$0.041	ORAL	Q6H ALT	
10MG		\$0.043		Q6H HFN	
20MG		\$0.054		Q6MIN	
40MG		\$0.067		Q6MONTH	
80MG		\$0.134		Q6WEEK	
				Q72H	
				Q8H	

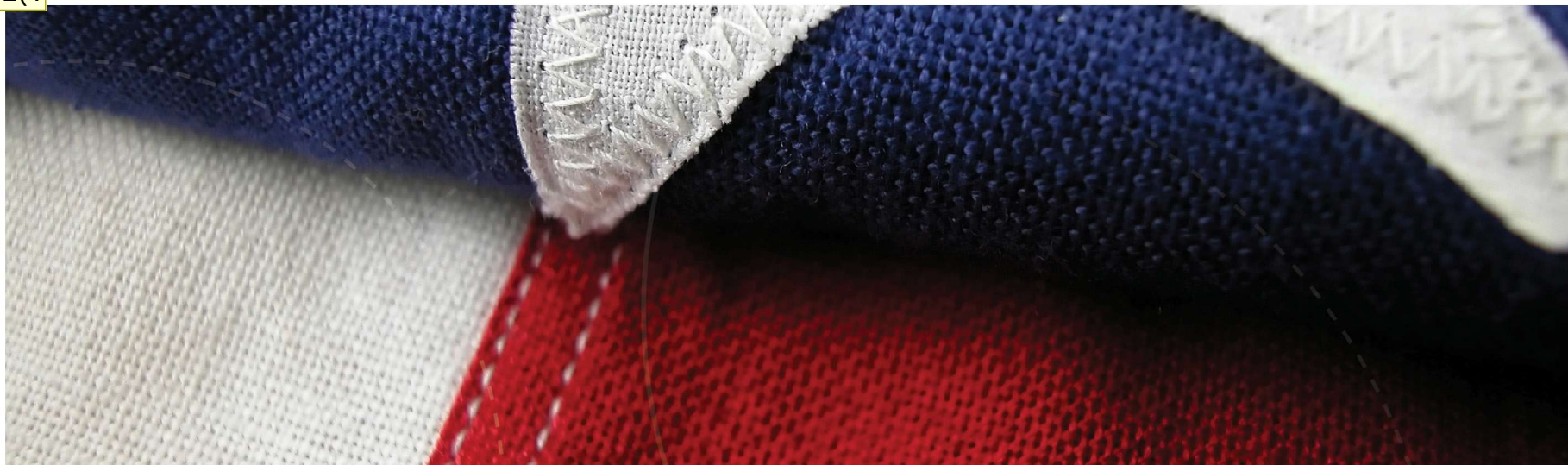
Order Checking

(1 of 1) Patient with enteral feeding tube  
Patient has an enteral feeding tube. If medications are administered via enteral tube, manually assess the safety and efficacy of the ordered medication for enteral route of administration.

Accept Order Cancel Order Drug Interaction Monograph

Days Supply: 90 Qty (TAB): 45 Refills: 0 Pick Up: ☐ Clinic ☒ Mail ☐ Window Priority: ROUTINE

Patient Instruction: ☒ For cholesterol



# Requesting a Pharmacy Enteral Tube Medication Review - Econsult

## Slide 16

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EEE(1

Eickman, Elizabeth E. (KCVA), 5/28/2021

# Pharmacy Enteral Tube Medication Review

- **Enteral Tube Medication Review**
  - Evaluate appropriateness and efficacy of medication list through enteral tube
  - Make recommendations for changes based on VA formulary
  - Work with interdisciplinary teams to find best medications for patients with enteral tube requirements



# Pharmacy Enteral Tube Medication Review - Econsult Option 1

CPRS → Consults → New Consult → Kansas City → **\*\*ECONSULTS PHARMACY\*\***

The screenshot shows a web browser window with the URL [Paige L. \(vista.kansas-city.med.va.gov\)](http://vista.kansas-city.med.va.gov). The page title is "Consults" and it has a "Done" button in the top right corner. The main content area is a list of consult options, each with a bold header and a list of sub-options. The options are:

- \*\*MEDICINE CONSULTS\*\***
  - Medicine Consults (Card/Derm/Endo/GI/GM/Hem/ID/Ren/Neur/Onc/Pulm/Rheum/RadOnc)
- \*\*ECONSULTS MEDICINE\*\***
  - eConsults
- \*\*SURGERY CONSULTS\*\***
  - Surgery Consults(ENT/Osto/Gen Sur/Neuro/Dral/Ortho/Plastic/Thora/Uro/Vas/Wound)
- \*\*ECONSULTS SURGERY\*\***
  - eConsults
- \*\*ALL OTHER CONSULT SERVICES\*\***
  - Other Service Consults
- \*\*INTERFACILITY CONSULTS\*\***
  - Interfacility Consults
- \*\*COMMUNITY CARE CONSULT\*\***
  - Community Care Consults
- \*\*MENTAL HEALTH\*\***
  - Substance Use Disorder Treatment
  - Inpatient Psychiatry Consult
  - Mental Health Outpatient
  - Neuropsychology Clinic Consults
  - Positive Columbia: ED USE ONLY
  - Econsult MH
  - Econsult Suicide Prevention
- \*\*PROSTHETICS\*\***
  - Prosthetics
- \*\*PHARMACY\*\***
  - Pharmacy Services
- \*\*ECONSULTS PHARMACY\*\***
  - eConsult Pharmacy
- \*\*TRANSFER REQUEST FROM OUTSIDE FACILITY\*\***
  - Transfer Request From Outside Facility
- \*\*TRACHEAL HUMIDITY\*\***
  - \*\*Tracheal Humidity (Restricted to Pulmonary/ENT/Transition ONLY)\*\*
- \*\*DENTAL\*\***
  - \*\*Dental Providers ONLY\*\*

On the right side of the page, there are two additional sections:

- RETURN TO CLINIC CONSULTS**
  - MEDICAL SUBSPECIALTY CONSULTS
- TELEHEALTH**
  - Telehealth Consults

# Pharmacy Enteral Tube Medication Review - Econsult Option 1

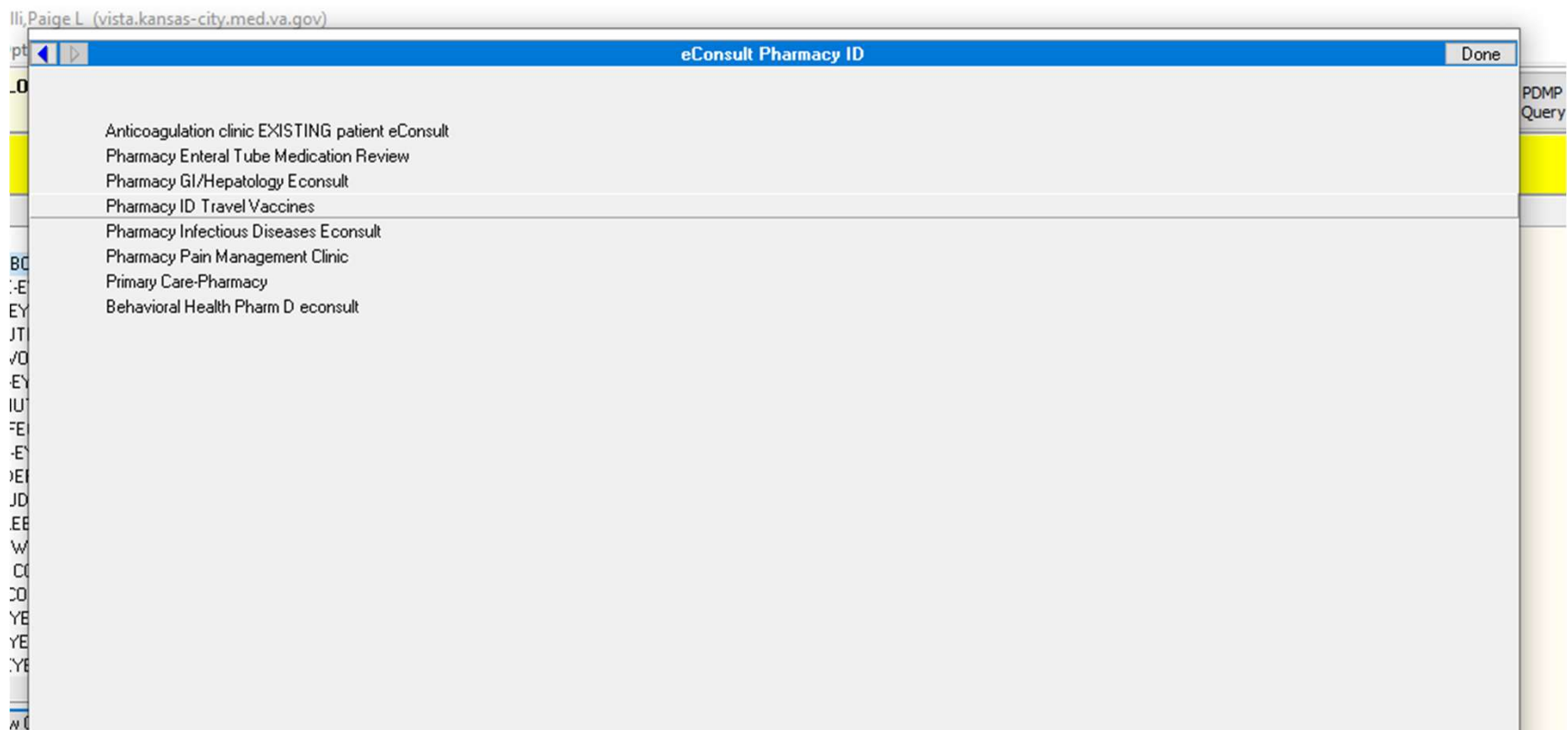
CPRS → Consults → New Consult → Kansas City → **\*\*ECONSULTS PHARMACY\*\***

The screenshot shows a web browser window with the URL 'Paige L (vista.kansas-city.med.va.gov)'. The page title is 'Consults'. The main content area lists various medical consult categories. A red rectangular box highlights the option '\*\*ECONSULTS PHARMACY\*\*' which includes the subtext 'eConsult Pharmacy'. Other visible options include 'MEDICINE CONSULTS', 'SURGERY CONSULTS', 'ALL OTHER CONSULT SERVICES', 'INTERFACILITY CONSULTS', 'COMMUNITY CARE CONSULT', 'MENTAL HEALTH', 'PROSTHETICS', 'TRANSFER REQUEST FROM OUTSIDE FACILITY', 'TRACHEAL HUMIDITY', and 'DENTAL'.

Consult Category	Subcategory
<b>**MEDICINE CONSULTS**</b>	Medicine Consults (Card/Derm/Endo/GI/GM/Hem/ID/Ren/Neur/Onc/Pulm/Rheum/RadOnc)
<b>**ECONSULTS MEDICINE**</b>	eConsults
<b>**SURGERY CONSULTS**</b>	Surgery Consults(ENT/Osto/Gen Sur/Neuro/Dral/Ortho/Plastic/Thora/Uro/Vas/Wound)
<b>**ECONSULTS SURGERY**</b>	eConsults
<b>**ALL OTHER CONSULT SERVICES**</b>	Other Service Consults
<b>**INTERFACILITY CONSULTS**</b>	Interfacility Consults
<b>**COMMUNITY CARE CONSULT**</b>	Community Care Consults
<b>**MENTAL HEALTH**</b>	Substance Use Disorder Treatment Inpatient Psychiatry Consult Mental Health Outpatient Neuropsychology Clinic Consults Positive Columbia: ED USE ONLY Econsult MH Econsult Suicide Prevention
<b>**PROSTHETICS**</b>	Prosthetics
<b>**PHARMACY**</b>	
<b>**ECONSULTS PHARMACY**</b>	eConsult Pharmacy
<b>**TRANSFER REQUEST FROM OUTSIDE FACILITY**</b>	Transfer Request From Outside Facility
<b>**TRACHEAL HUMIDITY**</b>	**Tracheal Humidity (Restricted to Pulmonary/ENT/Transition ONLY)**
<b>**DENTAL**</b>	**Dental Providers ONLY**

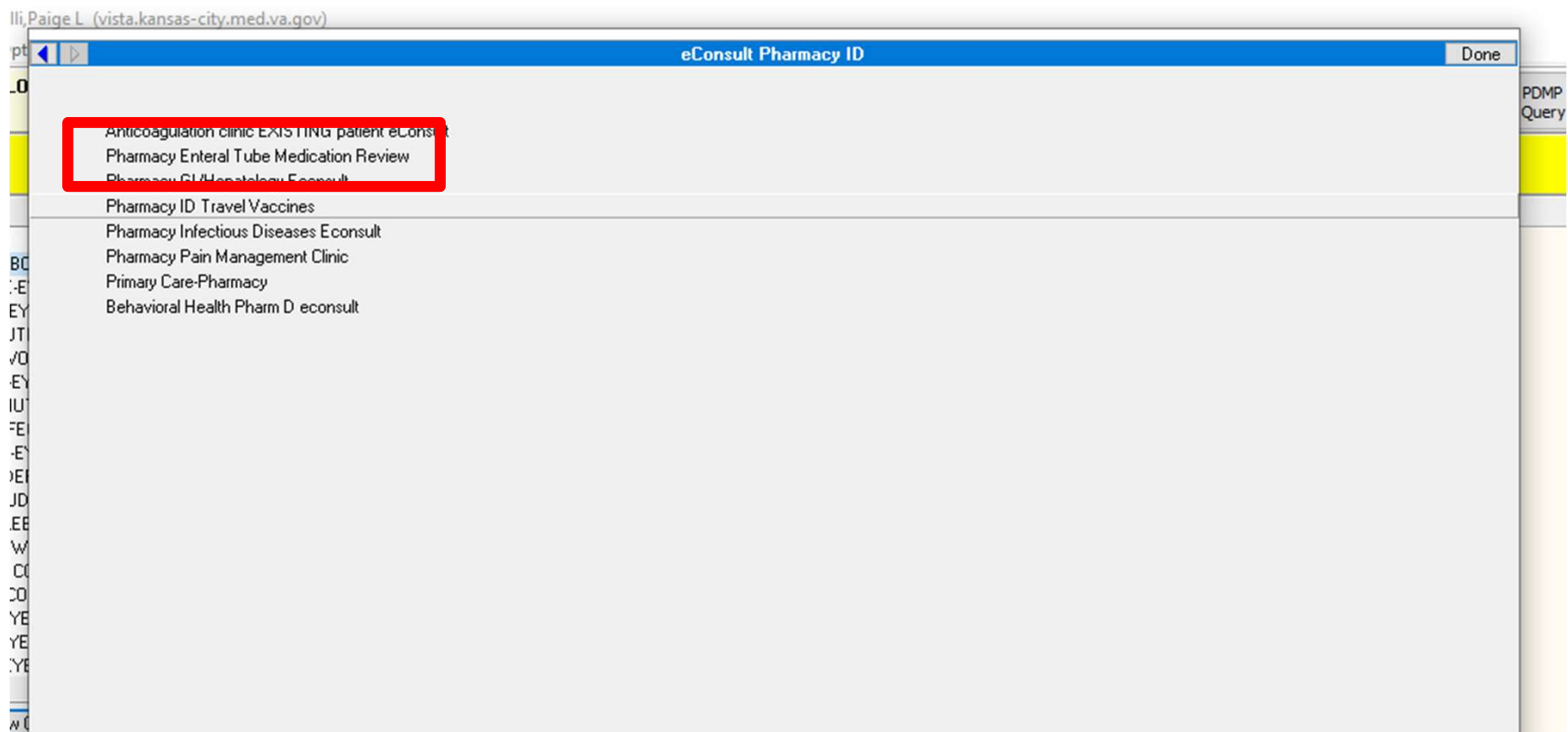
# Pharmacy Enteral Tube Medication Review - Econsult Option 1

CPRS → Consults → New Consult → Kansas City → \*\*ECONSULTS PHARMACY\*\* →  
Pharmacy Enteral Tube Medication Review



# Pharmacy Enteral Tube Medication Review - Econsult Option 1

CPRS → Consults → New Consult → Kansas City → \*\*ECONSULTS PHARMACY\*\* →  
Pharmacy Enteral Tube Medication Review



# Pharmacy Enteral Tube Medication Review - Econsult Option 1

CPRS → Consults → New Consult → Kansas City → **\*\*ECONSULTS PHARMACY\*\*** → Pharmacy Enteral Tube Medication Review

The screenshot shows a web-based form titled "Reason for Request: KC-ECONSULT PHARMACY ENTERAL TUBE MEDICATION REVIEW". The form contains the following sections:

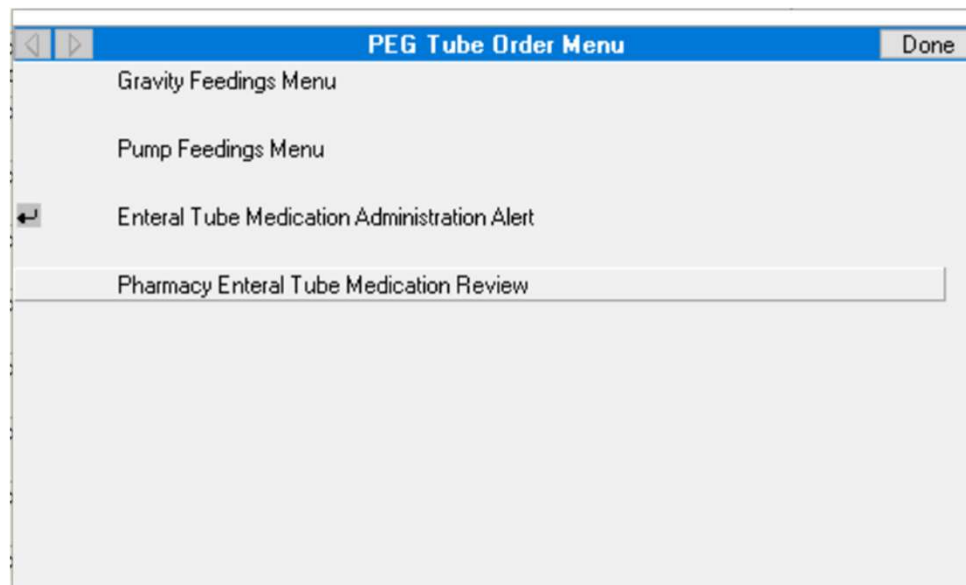
- A message: "\*\*\*This is a chart review, not a face to face consult\*\*\*"
- A question: "Does the patient require medications to be administered via enteral tube?" with radio buttons for "Yes" (selected) and "No".
- A section titled "Please select type of enteral tube:" with four checkboxes: "Nasogastric", "Gastrostomy/PEG", "Nasojejunal", and "Jejunostomy".
- A section titled "Please select feeding administration method:" with four checkboxes: "Continuous", "Continuous Cyclic", "Intermittent", and "Bolus".
- A question: "Has the medication list been reconciled?" with radio buttons for "Yes" (selected) and "No".
- A text area labeled "Additional pertinent information if needed:".
- A footer area with a note: "\*\*\*Recommendations regarding medication alternatives and adjustments will be made by pharmacist to the requesting provider. The requesting provider is responsible for ordering medication adjustments.\*\*\*"
- Buttons at the bottom: "Preview", "OK", and "Cancel".

On the left side of the form, there is a vertical list of tabs or options, including "Sign", "View", "ZD", "09", "om", "or 2", "or 0", "ar 1", "ar 0", "sb 2", "sb 2", "sb 1", "sb 0", "in 1", "ec 2", "ec 1", "ov 0", and "ate".



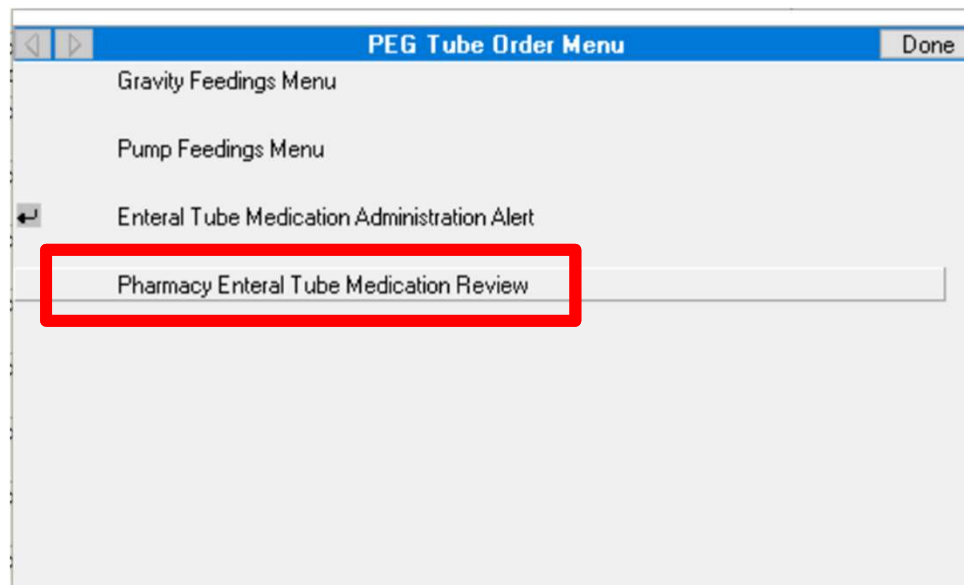
# Pharmacy Enteral Tube Medication Review - Econsult Option 2

CPRS → Orders → MISC → PEG Tube Order Set → Pharmacy Enteral Tube Medication Review



# Pharmacy Enteral Tube Medication Review - Econsult Option 2

CPRS → Orders → MISC → PEG Tube Order Set → Pharmacy Enteral Tube Medication Review



# Pharmacy Enteral Tube Medication Review - Econsult Option 2

CPRS → Orders → MISC → PEG Tube Order Set → Pharmacy Enteral Tube Medication Review

Reason for Request: KC-ECONSULT PHARMACY ENTERAL TUBE MEDICATION REVIEW

\*\*\*This is a chart review, not a face to face consult\*\*\*

Does the patient require medications to be administered via enteral tube?  
☒ Yes ☐ No

Please select type of enteral tube:

☐ Nasogastric  
☐ Gastrostomy/PEG  
☐ Nasojejunal  
☐ Jejunostomy

Please select feeding administration method:

☐ Continuous  
☐ Continuous Cyclic  
☐ Intermittent  
☐ Bolus

Has the medication list been reconciled?  
☒ Yes ☐ No

Additional pertinent information if needed:

\*\*\*Recommendations regarding medication alternatives and adjustments will be made by pharmacist to the requesting provider. The requesting provider is responsible for ordering medication adjustments.\*\*\*

\* Indicates a Required Field    Preview    OK    Cancel

## Example Consult – Enteral Tube Medication Review

\*\*\* KC-ECONSULT PHARMACY ENTERAL TUBE MED REVIEW Has ADDENDA \*\*\*

\*\*\*This is a chart review, not a face to face consult\*\*\*

The purpose of this chart review is to evaluate the appropriateness of the patients medications when administered via enteral tube as requested by ordering provider.

Delivery site:

<input type="checkbox"/> Nasogastric	<input type="checkbox"/> Nasojejunal
<input checked="" type="checkbox"/> Gastrostomy/PEG	<input type="checkbox"/> Jejunostomy

Administration method:

<input type="checkbox"/> Continuous	<input type="checkbox"/> Continuous Cyclic
<input checked="" type="checkbox"/> Intermittent	<input type="checkbox"/> Bolus

PMH

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Active Problem

Amyotrophic lateral sclerosis

Coronary artery disease

Vitamin B12 deficiency

Gastric ulcer

Active and Recently Expired Outpatient Medications (including Supplies):

	Status	Issue Date
	Refills	Last Fill
Active Outpatient Medications		Expiration

# Medication list

Active Outpatient Medications	Status	Issue Date
Refills	Last Fill	Expiration
1) ALCOHOL PREP PAD Qty: 200 for 90 days Sig: USE 1 PAD AS DIRECTED BY PROVIDER *USE FOR EDARAVONE INFUSION*	ACTIVE Refills: 3	Issu:04-14-21 Last:04-19-21 Expr:04-15-22
2) ASPIRIN 81MG EC TAB Qty: 120 for 120 days Sig: TAKE ONE TABLET BY MOUTH ONCE A DAY FOR HEART OR CIRCULATION.TAKE WITH FOOD.*DO NOT CHEW TABLET*	ACTIVE Refills: 2	Issu:03-02-21 Last:03-04-21 Expr:03-03-22
3) CENTURION PORT DRESSING CHANGE Qty: 3 for 28 days Sig: APPLY DRESSING KIT TO AFFECTED AREA EVERY WEEK FOR PORT CHANGE WITH EDARAVONE INFUSION	ACTIVE Refills: 10	Issu:04-14-21 Last:05-12-21 Expr:04-15-22
4) CLOPIDOGREL BISULFATE 75MG TAB Qty: 90 for 90 days Sig: TAKE ONE TABLET BY MOUTH ONCE A DAY TO PREVENT BLOOD CLOTS	ACTIVE Refills: 3	Issu:03-02-21 Last:03-04-21 Expr:03-03-22
5) DULOXETINE HCL 30MG EC CAP Qty: 90 for 90 days Sig: TAKE ONE CAPSULE BY MOUTH ONCE A DAY	ACTIVE Refills: 3	Issu:03-16-21 Last:03-19-21 Expr:03-17-22
6) EDARAVONE 0.3MG/ML INJ BAG 100ML Qty: 20 for 28 days Sig: INJECT 60MG INTRAVENOUS ONCE A DAY EDARAVONE INFUSION - FOR ALS. 10 DOSES ARE ADMINISTERED OVER 14 DAYS AND THEN A 14 DAY BREAK.	ACTIVE Refills: 11	Issu:05-10-21 Last:05-12-21 Expr:05-11-22

7) EPI(EQV-ADRENALCLICK)0.3MG/0.3ML INJCTR Qty: 2 for 30 days Sig: INJECT 0.3MG (0.3ML) OF 0.3MG/0.3ML INTRAMUSCULARLY ONE TIME *EDARAVONE INFUSION*	ACTIVE Refills: 1	Issu:04-14-21 Last:04-19-21 Expr:04-15-22
8) FLUTICASONE PROP 50MCG 120D NASAL INHL Qty: 3 for 90 days Sig: INSTILL 2 SPRAYS IN EACH NOSTRIL ONCE A DAY SHAKE GENTLY BEFORE USE! - MUST BE USED AS DIRECTED FOR 3 WEEKS TO PROVIDE BENEFIT. * NO EARLY REFILLS * 1 UNIT = 30 DAYS AT 4 SPRAYS/DAY OR 60 DAYS AT 2 SPRAYS/DAY	ACTIVE Refills: 3	Issu:03-02-21 Last:03-04-21 Expr:03-03-22
9) GLOVE VINYL MEDIUM PWDR-FREE NONSTERILE Qty: 100 for 30 days Sig: USE GLOVE AS DIRECTED BY PROVIDER *USE FOR EDARAVONE INFUSION*	ACTIVE Refills: 11	Issu:04-14-21 Last:04-19-21 Expr:04-15-22
10) GRIPPER PLUS SAFETY NEEDLE Qty: 3 for 28 days Sig: USE NEEDLE EVERY WEEK FOR PORT WITH EDARAVONE INFUSION	ACTIVE Refills: 2	Issu:04-14-21 Last:05-12-21 Expr:04-15-22
11) HEPARIN 100 UNIT/ML PF LOCK FLUSH SYR 5ML Qty: 15 for 28 days Sig: INJECT 500 UNITS/5ML IV PUSH ONCE A DAY EDARAVONE INFUSION	ACTIVE Refills: 9	Issu:04-14-21 Last:05-12-21 Expr:04-15-22
12) LORATADINE 10MG TAB Qty: 90 for 90 days Sig: TAKE ONE TABLET BY MOUTH ONCE A DAY AS NEEDED FOR ALLERGIES	ACTIVE Refills: 3	Issu:03-02-21 Last:03-04-21 Expr:03-03-22
13) MAX PLUS CONNECTOR Qty: 3 for 28 days Sig: USE CONNECTOR EVERY WEEK FOR PORT WITH EDARAVONE INFUSION	ACTIVE Refills: 10	Issu:04-14-21 Last:05-12-21 Expr:04-15-22



# Medication list

14)	PANTOPRAZOLE NA 40MG EC TAB Qty: 90 for 90 days Sig: TAKE ONE TABLET BY MOUTH ONCE A DAY TO LOWER STOMACH ACID. TAKE 30 MINUTES PRIOR TO FOOD	ACTIVE	Issu:03-02-21
		Refills: 3	Last:03-04-21
			Expr:03-03-22
15)	RILUZOLE 50MG TAB Qty: 60 for 30 days Sig: TAKE ONE TABLET BY MOUTH TWO TIMES A DAY FOR ALS. TAKE ON AN EMPTY STOMACH. *NEURO MENU*	ACTIVE	Issu:03-05-21
		Refills: 3	Last:05-10-21
			Expr:03-06-22
16)	SET, IV ADMINISTRATION 15 GTT/ML #V1402 Qty: 20 for 28 days Sig: USE SET AS DIRECTED *USE FOR EDARAVONE INFUSION*	ACTIVE	Issu:04-14-21
		Refills: 9	Last:05-12-21
			Expr:04-15-22
17)	SET, INFUSION, FLOW REG, 12IN STAT2 #S2-12 Qty: 20 for 28 days Sig: USE SET AS DIRECTED BY PROVIDER *USE FOR EDARAVONE INFUSION*	ACTIVE	Issu:04-14-21
		Refills: 9	Last:05-12-21
			Expr:04-15-22
18)	SHARPS DISPOSAL CONTAINER 1 GALLON SIZE Qty: 1 for 90 days Sig: USE AS DIRECTED AS DIRECTED *EDARAVONE INFUSION*	ACTIVE	Issu:04-14-21
		Refills: 3	Last:04-19-21
			Expr:04-15-22
19)	SKIN PREP, NO STING WIPE Qty: 50 for 90 days Sig: USE WIPE ON AFFECTED AREA AS NEEDED	ACTIVE	Issu:05-10-21
		Refills: 3	Last:05-12-21
			Expr:05-11-22
20)	SODIUM CHLORIDE 0.9% PF INJ SYR 10ML Qty: 35 for 28 days Sig: INJECT SYRINGE IV PUSH ONCE A DAY AND 2 PER EDARAVONE INFUSION	ACTIVE	Issu:04-14-21
		Refills: 10	Last:05-12-21
			Expr:04-15-22

# Assessment / Recommendations

## **Medication(s) not appropriate for enteral administration and alternative medication recommendations:**

- DULOXETINE HCL 30MG EC CAP
  - extended release, enteric coated, capsule not appropriate for enteral tube administration
  - recommendation: change to venlafaxine tab 25mg or 37.5mg BID and titrate up as indicated/needed (half-life ~5 hours regardless of dose)
  - venlafaxine 37.5 mg tablet disperses within 5 minutes when placed in 10 mL of water to give a fine dispersion that settles quickly but flushes through an 8Fr NG tube without Blockage.
- ASPIRIN 81MG EC TAB
  - change to ASPIRIN 81MG CHEW TAB CN103

## **Medication(s) NOT APPROPRIATE FOR CRUSHING but that may still be administered via enteral tube if first properly DISPERSED IN A CLOSED SYSTEM:**

- PANTOPRAZOLE NA 40MG EC TAB
  - submit n/f request for ESOMEPRAZOLE CAPSULES –open capsules to mix with water and administer through tube

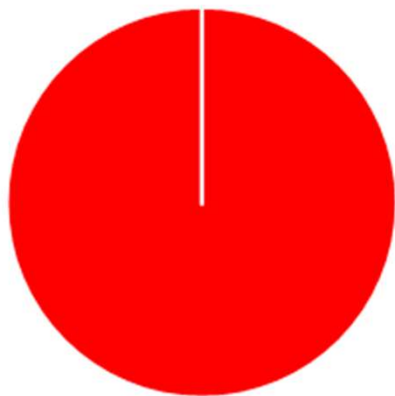
**Medication(s) that should be spaced from feedings:** none

## **Other recommendations:**

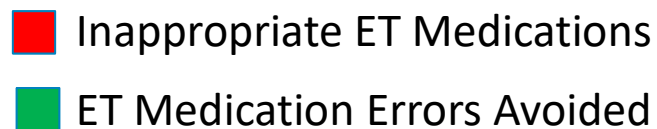
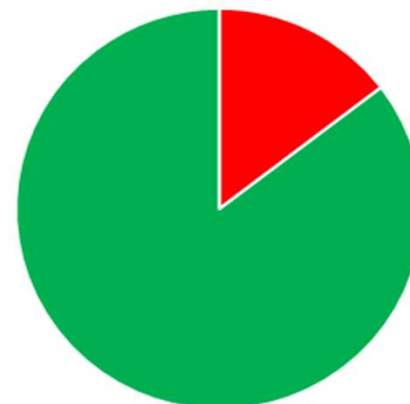
- RILUZOLE 50MG TAB
  - Film-coated tablets. The manufacturer has anecdotal reports that the tablets can be crushed and mixed with water. The 'suspension' should be administered within 15 minutes
- CLOPIDOGREL BISULFATE 75MG TAB
  - Film-coated. Although the manufacturer has no specific information on this route of administration, there are likely to be alteration in the pharmacokinetics if the tablets are crushed. However, this is unlikely to cause any adverse effects. The tablets do not disperse readily in water. They can be crushed (although this is difficult owing to the coating) and then mixed with 10 mL water; the resulting suspension can then be flushed down an 8Fr NG feeding tube without blockage.
  - \*\*consider evaluating need for dual antiplatelet therapy\*\*

# Enteral Tube Medication Safety - Results

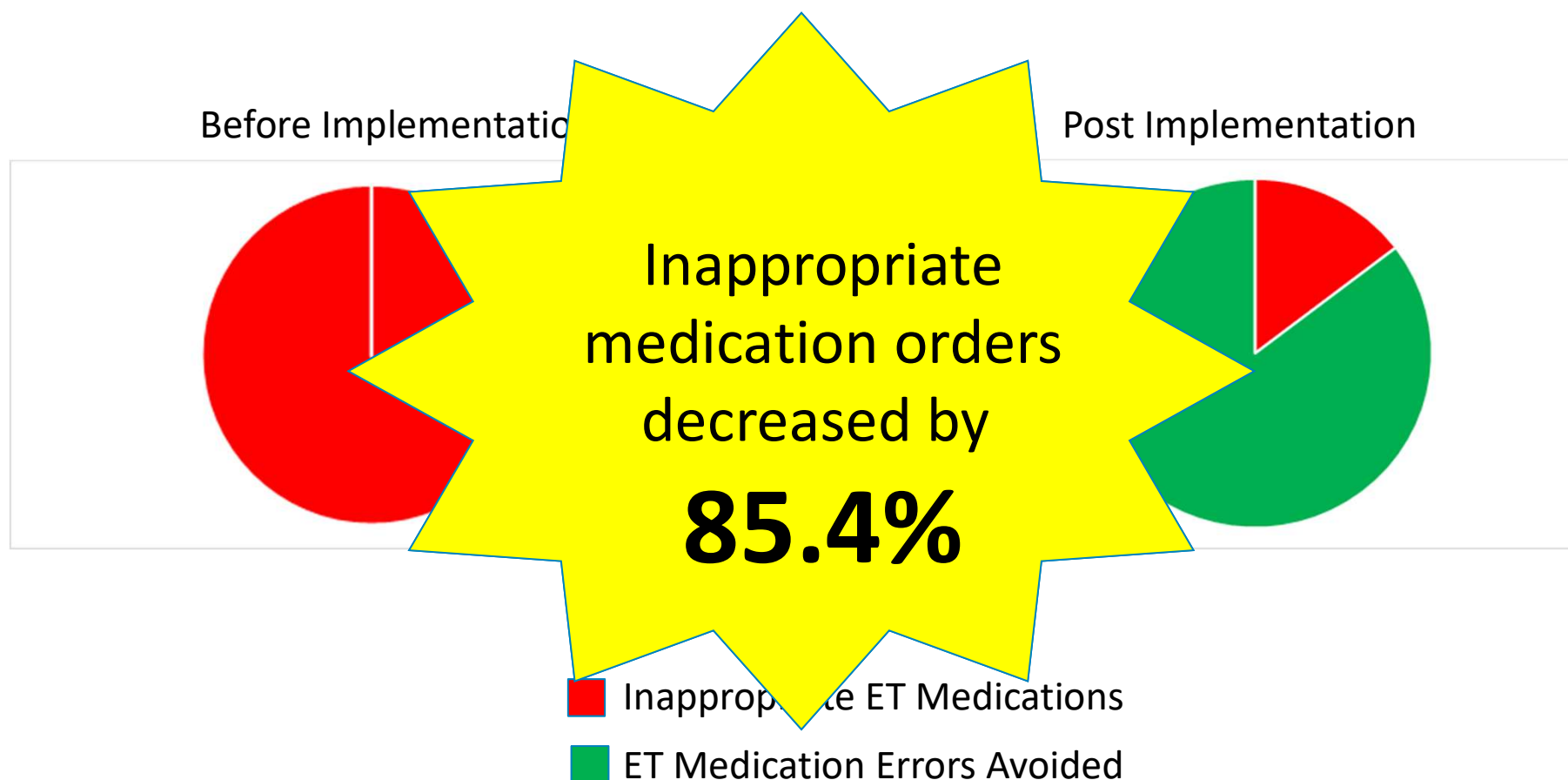
Before Implementation



Post Implementation



# Enteral Tube Medication Safety - Results



# Enteral Tube Medication Safety - Conclusions

- Provides a standardized way within CPRS to identify Veterans utilizing ET for medication administration
- Alerts providers and pharmacists to perform prospective medication review for ET safety
- Potential cost avoidance
  - Primary ET complication estimated as ~\$1071
  - 35 med errors avoided, extrapolated cost savings \$37,485

# Enteral Tube Medication Safety – Future Directions

- •Develop a Standard of Work and implementation toolkit
- •Expand CROC to inpatient use
- •Automate addition of CROC
- •Develop CROC for veterans that crush medications for oral administration
- Create dashboard identifying ET patients



# References

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4. Emami S, Hamishehkar H, Mahmoodpoor A, et al. Errors of oral medication administration in a patient with enteral feeding tube. *J Res Pharm Pract*. 2012;1(1):37-40
5. Crushing tablets or opening capsules: many uncertainties, some established dangers. *Prescrire Int*. 2014;**23**(152):209-211, 213-204.

# Questions?

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