Impact of Inpatient Pain Pharmacist E-consults on Post-Discharge Morphine Equivalent Daily Doses

U.S. Department of Veterans Affairs
VA Long Beach Healthcare System

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BACKGROUND

- In the inpatient setting, studies suggest that more than 60% of inpatients experience incomplete or inadequate pain relief
- In 2018, The Joint Commission published updated inpatient pain recommendations, suggesting that hospitals establish policies and procedures for review of pain regimens by pain specialists or pharmacists
- In January 2018, the VALBHS implemented an Inpatient Pain Pharmacist electronic consult (E-consult) Service to address indiscriminate opioid prescribing. Its goal was to review patients' electronic medical records and provide strategies to reduce high-dose opioid analgesics and provide recommendations for complex pain management cases

2004 – 2012: Prevalence of opioid prescriptions among Veterans increased from 18.9% to 33.4%[1]

2013: Veterans Affairs Opioid Safety Initiative (OSI) launched

2015: Outpatient Pain Clinic established at VALBHS (comprising of a pain MD and PharmD). PharmD services include: - Face-to-face clinic - Outpatient E-consult

2018: Joint Commission mandates that hospitals create and implement policies and procedures for review of pain regimens by pain specialists or pharmacists[2]

January 2018: Inpatient Pain Pharmacist E-consult service established at VALBHS

OBJECTIVES

Primary Objective 1: *Describing E-consults*

- Describe inpatient pain pharmacist E-consults:
  - Categorizing the reasons for consultation
  - Describing pharmacist interventions and recommendations accepted

Primary Objective 2: *Comparing E-consult vs Non E-consult*

- Evaluate clinical outcomes compared between patients who received an E-consult versus patients who did not regarding:
  - MEDD change
  - Therapy change

METHODS

- Retrospective database chart review
- Patient data obtained using Veterans Affairs Corporate Data Warehouse and the Computerized Patient Record System (CPRS)
- Study Period Index Date: January 1st, 2018 to August 31st, 2019
- Inclusion criteria: Patients receiving LA/ER opioids who received an inpatient pain pharmacist E-consult during the index period
- Exclusion criteria: Patients who transferred their outpatient care to a facility other than VALBHS; passed away within 90 days post-discharge; or were continued on a LA/ER opioid initiated by a non-VA provider
- Statistical Analysis: T-test, Chi-Squared, repeated measures two-way ANOVA

RESULTS

Table 1: Demographic and Baseline Characteristics

Characteristics	E-consult group (N=75)
Age, year, mean ± SD	62.58 ± 12.16
Sex, male – no. (%)	68 (90.6)
Ethnicity, no. (%)	
White	44 (58.7)
Non-white	24 (32.0)
Declined to Answer	7 (9.3)
Level of care, no. (%)	
Noncancer/palliative/hospice	66 (88)
Cancer/palliative/hospice	9 (12)
Medications upon admission[a], no. (%)	
Opioid therapy,	
No	12 (16.0)
Yes,	63 (84.0)
IR opioids only	*30 (47.6)*
LA/ER opioids only	*8 (12.7)*
Both IR and LA/ER opioids	*25 (39.7)*
Nonopioid therapy,	
Anticonvulsants	39 (52.0)
Antidepressants	24 (32.0)
NSAIDs	11 (14.7)
Topical analgesics	29 (38.7)
APAP/tramadol	32 (42.7)
Average MEDD upon admission, ± SD	
Noncancer/palliative/hospice	84.09 ± 88.95
Cancer/palliative/hospice	95.3 ± 227.1

[a]May have more than 1 per category

Figure 1: Reasons for E-consultation

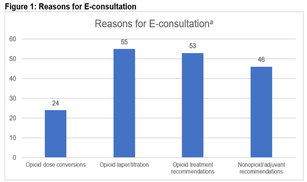
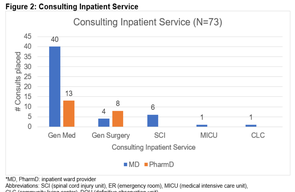


Figure 2: Consulting Inpatient Service



*MD, PharmD: inpatient ward provider.
Abbreviations: SCI (spinal cord injury unit), ER (emergency room), MICU (medical intensive care unit), CLC (community living center), DOU (definitive observation unit)

Figure 3: Estimated MEDD (mg/day)

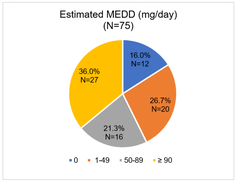
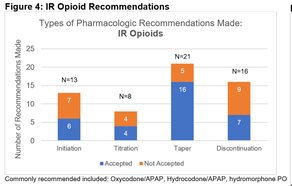
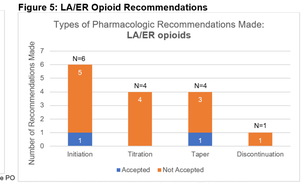


Figure 4: IR Opioid Recommendations



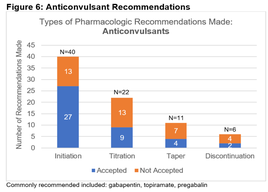
Commonly recommended included: Oxycodone/APAP, Hydrocodone/APAP, hydromorphone PO

Figure 5: LA/ER Opioid Recommendations



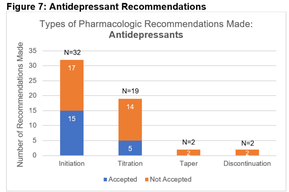
Commonly recommended included: morphine SA, fentanyl TDS, methadone

Figure 6: Anticonvulsant Recommendations



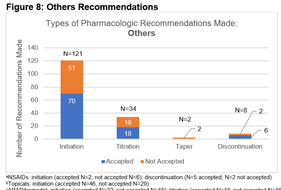
Commonly recommended included: gabapentin, topiramate, pregabalin

Figure 7: Antidepressant Recommendations



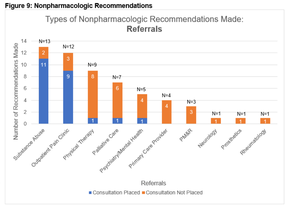
Commonly recommended included: duloxetine, venlafaxine

Figure 8: Others Recommendations



*NSAIDs: initiation (accepted N=2, not accepted N=6); discontinuation (N=5 accepted, N=2 not accepted)
†Topicals: initiation (accepted N=46, not accepted N=29)
‡APAP/tramadol: initiation (accepted N=22, not accepted N=16); titration (accepted N=18, not accepted N=16); taper (not accepted N=2); discontinuation (accepted N=1, not accepted N=1)

Figure 9: Nonpharmacologic Recommendations



RESULTS

Table 2: Demographic and Baseline Characteristics

Characteristics	E-consult group, (N=65)	Non E-consult group, (N=69)	p-value
Age, year – (mean ± SD)	62.92 ± 12.49	64.46 ± 13.23	0.49
Sex, male – no. (%)	58 (89.2)	66 (95.7)	0.16
Ethnicity – no. (%)			0.89
White	38 (58.5)	45 (65.2)	
Non-white	22 (33.8)	20 (30.0)	
Declined to Answer	5 (7.7)	4 (5.8)	
Level of care – no. (%)			0.88
Noncancer/palliative/hospice	60 (92.3)	62 (89.8)	
Cancer/palliative/hospice	5 (7.7)	7 (10.1)	
Medications upon admission – no. (%)			
Opioid therapy,			
Not on opioids	11 (16.9)	11 (15.9)	0.99
IR opioids only	27 (50.0)	12 (20.7)	**0.02**
LA/ER opioids only	8 (14.8)	13 (22.4)	0.78
Both IR and LA/ER opioids	19 (35.2)	33 (56.9)	0.18
Nonopioid therapy*			
Anticonvulsants	31 (47.7)	42 (60.9)	0.33
Antidepressants	11 (16.9)	4 (5.8)	0.24
NSAIDs	13 (20.0)	9 (13.0)	0.76
Topical analgesics	29 (44.6)	34 (49.3)	0.96
APAP/tramadol	33 (50.8)	19 (27.5)	0.06
Average MEDD upon admission ± SD			0.61
Noncancer/palliative/hospice	71.05 ± 72.17	68.08 ± 65.18	
Cancer/palliative/hospice	63.6 ± 85.16	77.43 ± 33.44	
Estimated MEDD (mg/day) – no. (%)			0.93
0	11 (16.9)	11 (15.9)	
1-49	20 (30.8)	23 (33.3)	
50-89	16 (24.6)	14 (20.3)	
≥ 90	18 (27.7)	21 (30.4)	
Inpatient LA/ER opioid received – no. (%)			0.51
Fentanyl transdermal patch	9 (13.8)	5 (7.2)	
Methadone	3 (4.6)	2 (2.9)	
Morphine sustained-release	53 (81.5)	62 (89.9)	
Two of the above[b]	2 (7.7)	1 (1.4)	

*May have more than 1 per category
[b]Patients on dual LA/ER opioid: E-consult –1 patient on fentanyl + morphine SA,1 patient on fentanyl + morphine SA; Non E-consult – 1 patient on fentanyl + methadone

Figure 10: Overall MEDD

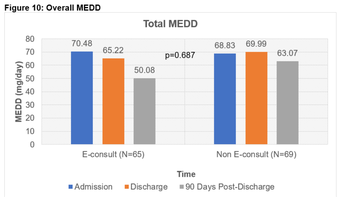


Figure 11: MEDD Difference from Admission

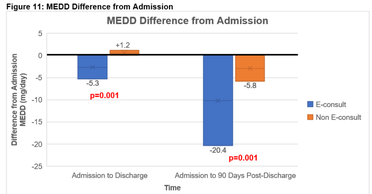


Table 3: Nonopioid Therapy Change

% Therapy Change	E-consult group, N=65	Non E-consult group, N=69
Anticonvulsants,		
Admission to Discharge	↑+15.4%	↑ +5.8%
Admission to 90 Days Post-Discharge	↑+18.5%	↑ +5.8%
Antidepressants,		
Admission to Discharge	↓ -3.1%	0.0%
Admission to 90 Days Post-Discharge	↑+5.8%	0.0%
NSAIDs,		
Admission to Discharge	↓-3.1%	↑ +5.8%
Admission to 90 Days Post-Discharge	↓-4.6%	↑ +4.4%
Topical analgesics,		
Admission to Discharge	↑ +4.6%	↓ -4.4%
Admission to 90 Days Post-Discharge	↑+13.9%	↑ +1.4%
APAP/tramadol,		
Admission to Discharge	↓ -1.6%	↑ +4.4%
Admission to 90 Days Post-Discharge	↑ +3.0%	↑ +8.7%

DISCUSSION

- Primary reasons for E-consultation: opioid taper/titration and opioid treatment recommendations
- Pharmacologic recommendations acceptance rate: 51.3%
  - Most common: IR opioid, anticonvulsant, topical analgesics
- Nonpharmacologic recommendations acceptance rate: 41.1%
  - Most common: Substance Abuse Clinic and Outpatient Pain Clinic
- Data highlights the impact of a pharmacy-based pain management service in the inpatient setting
- Patients who received an inpatient pain pharmacist E-consult had a significantly greater reduction in MEDD from baseline compared to those who did not
- The E-consult group had a larger percentage of patients initiated on nonopioid therapies (anticonvulsants, antidepressants, and topical analgesics) by 90 days post-discharge
- Interventions made by an inpatient pain pharmacist can improve patient outcomes, and should be considered by healthcare systems

LIMITATIONS

- E-consults were for a single point of time during the inpatient admission
- Lack of pharmacist follow-up on acceptance or rejection of their recommendation
- MEDD therapy was calculated based on the opioids that were on the patient's active outpatient medication list at the time of admission
- Did not stratify patients who were post-surgery or disease severity

FUTURE DIRECTIONS

- Establish a dedicated inpatient pain pharmacy team to monitor patients longitudinally
- Development of a standardized referral criteria for E-consults
- Assess whether opioids administered during inpatient stay differed between E-consult vs Non E-consult group
- Evaluation and trend of increase or decrease in inpatient opioid MEDD throughout hospitalization

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DISCLOSURE STATEMENT

- The authors have nothing to disclose concerning financial or personal relationship with commercial entities that may have a direct or indirect interest in the subject matter of this presentation