



Comprehensive medication management (CMM) provided to veterans in an outpatient traumatic brain injury (TBI) clinic at a Veteran Affairs Medical Center



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BACKGROUND

- Combat-related traumatic brain injury (TBI) is a major medical concern in Veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). It is estimated that 12%-35% of OEF/OIF Veterans sustained at least one mild TBI. (Huggins, 2011)
- TBI can result in cognitive symptoms that can disrupt safe medication use and adherence.
- TBI patients may benefit from pharmacists providing comprehensive medication management (CMM), which aims to identify, resolve, and prevent drug related problems (DRPs).
- CMM has shown improved outcomes in patients by recognizing and resolving DRPs.
- A previous study demonstrated that approximately 10 DRT problems were found per Medicaid patient. CMM was estimated to reduce the cost of medical, hospital, and emergency department visits by \$472 per patient. The estimated cost savings was 2.5 times the cost of providing the service. (Dolovich, 2008)
- In another study, pharmacists provided CMM to 154 patients with psychiatric disorders. The average DRP per patient was 5.6 and the return on investment was \$2.8 per dollar spent. (Cobb, 2014)
- To the knowledge of the authors, CMM has not been evaluated in TBI patients.

OBJECTIVES

The purpose of this quality assurance project is to report if CMM recognizes potential drug related problems in an VA outpatient TBI clinic.

- Objective 1: Record the number of drug related problems per encounter and the number resolved one-month post encounter.
- Objective 2: Apply objective measures to assess if veterans' drug therapy goals are being met.
- Objective 3: Determine veterans' satisfaction with the service.

METHODS

OVERVIEW

- This is a quality assurance project performed at a single Veteran Affairs (VA) Medical Center. A pharmacy research fellow will provide CMM services to veterans seen in the outpatient TBI clinic from December 2015 to February 2016.
- The TBI clinic is a once weekly clinic for veterans with persistent psychiatric symptoms due to mild to moderate TBI.
- The pharmacy fellow offered CMM during routine visits at the discretion of the neuropsychiatrist.
- CMM services were provided through a face-to-face interaction during the veteran's regular scheduled appointment times.

OUTCOMES

- Objective 1: Drug related problems will be categorized into 4 main categories: appropriate, effective, safe, and adherence.
- Objective 2: The veteran's goal will be determined during the initial encounter and will be evaluated using objective measures when possible.
- Objective 3: Veterans' satisfaction with the service and ways to improve the service will be determined by asking veterans what they found helpful about the service, what they would change about the service, and if they would recommend the service to other veterans. Descriptive statistics will be used to analyze the data.

ENCOUNTER PROCEDURES

Three days prior to the encounter:

- Call veterans on the telephone and ask them to bring in all medications (prescription medications from VA providers and non-VA providers, herbal supplements, and over-the-counter medications) to their scheduled appointment.

CMM encounter:

- Establish the veteran's goal of therapy.
- Complete a medication reconciliation by evaluating medication bottles, refill history, and veteran reported compliance. Evaluate OTCs, supplements, substance use, and preventative measures.
- Determine if medications are appropriate, effective and safe.
- Access regimen adherence.
- Review vital signs, laboratory values, and rating scales.
- Perform additional assessments as needed.
- Develop a treatment plan to address the DRP, document in the electronic medical record, and co-sign the neuropsychiatrist and other members of the treatment team.
- Place medication orders and/or referrals.
- Communicate the plan to the veteran and provide a written plan of care.
- Ask the veteran three questions regarding satisfaction about the service.
- Schedule a follow-up appointment to evaluate for change.

STATISTICAL ANALYSIS

- Descriptive statistics will be used to analyze the data.

RESULTS

Table 1: Baseline Characteristics

Baseline Characteristics (n=25)	
Mean age, years± SD	50.1±13.7
Total number of medications, mean (range)	13.48 (8-34)
Total number of diagnosis, mean (range)	6.84 (2-12)
Common mental health diagnosis, number (%)	
Neurocognitive disorder due to TBI	24 (96)
Post-traumatic stress disorder	12 (48)
Major depressive disorder	3 (12)
Alcohol use disorder	3 (12)
Bipolar disorder	2 (8)
Veteran treatment goals, number (%)	
Improve sleep	4 (16)
Education on medications	5 (20)
Improve memory	1 (4)
Weight management	1 (4)
Update medication list	4 (16)
Medication overuse	1 (4)
Improve adherence	1 (4)
Management of PTSD	3 (12)
Management of depression	1 (4)
Decrease irritability	3 (12)
Veteran brought medication bottles to appointment, number (%)	21 (84)

Table 2: Drug Related Problems

Recognized and Addressed DRPs at Baseline (n=25)	Number (%)
Appropriateness	4 (6.34)
Effectiveness	22 (34.92)
Safety	25 (36.68)
Adherence	12 (19.05)
Total	63

Table 3: Outcomes

Outcomes (n=25)	Number (%)
Status of veteran's goal	
Stable	2 (8)
Improvement	8 (32)
Partial improvement	3 (12)
Unimproved	2 (8)
Worse	1 (4)
Failure	0 (0)
Follow-up not completed	4 (16)
Provided medication education	5 (20)
Drug related problems resolved	30

Table 4: Veteran Satisfaction

Question (n=25)	Response	
	Yes, number (%)	No, number (%)
Did you find that going over your medications today was helpful?	23 (92)	2 (8)
Would you say that CMM is valuable enough to recommend to other veterans?	23 (92)	2 (8)

When asked for ways to improve the service, one veteran reported that he felt concerned that he "had done something wrong" because he was asked to bring his medications to his appointment. One veteran stated that "he did not need the service." The remaining Veterans provided positive feedback.

CONCLUSIONS

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The findings from this quality assurance project support the value of CMM in special populations, such as veterans with TBI.

The TBI clinic meets once weekly and the project window was 3 months. Therefore, 25 veterans comprised the population reviewed.

The average number of resolved DRPs was one per veteran. This reflects the point-of-care nature of CMM in this setting where the DRPs are identified and resolved by a pharmacist with an advanced scope of practice. Unresolved DRPs represent those with pending referrals and return appointments scheduled outside the timeframe of the project.

The majority of veterans who received the service responded positively when questioned about the value of CMM.

Disclosure

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