THE ROLE OF THE CLINICAL PHARMACIST IN THE CARE OF TRAUMA PATIENTS: A SCOPING REVIEW

Brooke Gessner, PharmD; Sean Gorman, BSc (Pharm), ACPR, PharmD; Richard Slavik, BSc (Pharm), ACPR, PharmD, FCSHP; Allyson Thomson, RN; Heather Wilson, MD, FRCSC; Jarred Kelly BSc (Pharm), ACPR, ACPR2 (Critical Care)

BACKGROUND

- Trauma patients have complex drug therapy needs
- There are no publications that comprehensively describe the role or impact of clinical pharmacists who care for trauma patients
- This scoping review will be the first step in defining the role of the trauma pharmacist

OBJECTIVES

I. Characterize and catalogue all published literature relating to the role or activities of clinical pharmacists involved in the care of trauma patients
II. Describe the published roles, activities, and impact of clinical pharmacists involved in the care of trauma patients
III. Identify gaps in the literature and where future research efforts should be made

METHODS

DESIGN: Scoping review as per PRISMA-ScR, Arksey & O'Malley, and JBI; Protocol registered : OSF Registries

SEARCH STRATEGY: In consultation with UBC Librarian and Interior Health Librarian; [Trauma n5 pharma* OR clinical n3 pharmacist OR pharmacist* OR (MM "Pharmacists") OR (MM "Pharmacy+") OR (MM "Pharmacy Service, Hospital")] AND [Trauma* OR (MM "Wounds and Injuries+") OR (MM "Advanced Trauma Life Support Care") OR Resuscitation or CPR OR (MM "resuscitation+") OR Intubation OR (MM "Intubation, Intratracheal+") OR (MM "Thromboembolism+") OR ((Massive or shock) n3 (hemorrhag* or bleed*) OR (MM "Shock, Hemorrhagic")]

INCLUSION CRITERIA: All published articles describing licensed pharmacists who care for trauma patients in a hospital setting

EXCLUSION CRITERIA: Non-English language articles

DATA EXTRACTION: Title and abstract references were compiled using Covidence and screened in duplicate BG (100%) and JK (10%); full-text screening proceeded similarly.

ANALYSIS: Descriptive and quantitative for activities; qualitative for impact. A clinical pharmacy key performance indicator (cpKPIs) is a quantifiable process measure of clinical activities that are evidence-based and associated with improved patient and health outcomes – will use to categorize pharmacist activities and Cipolle's DTPs to categorize pharmaceutical interventions.

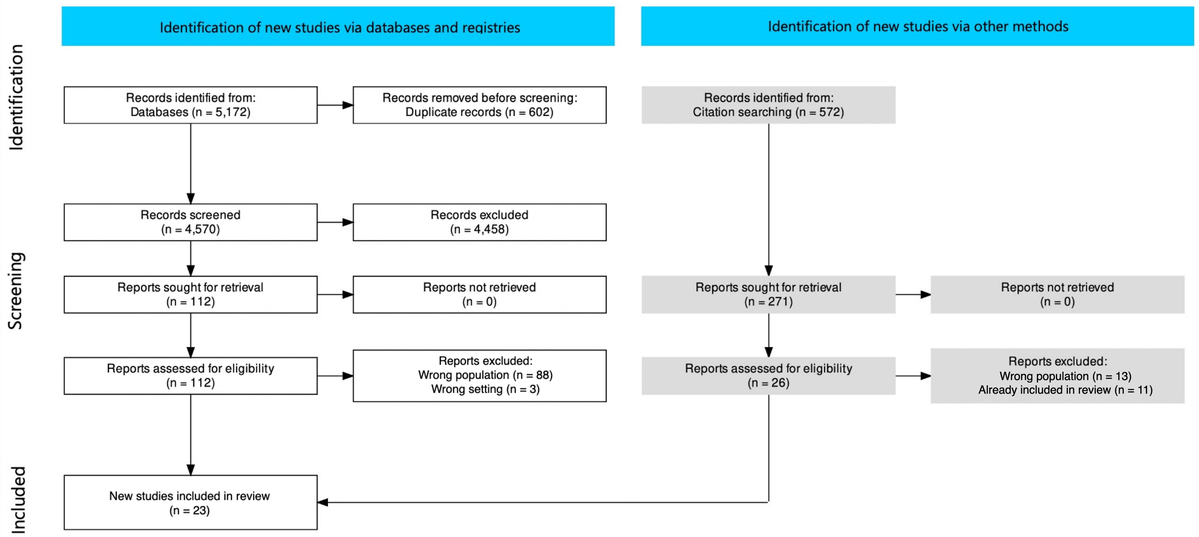
Medication reconciliation on admission | Resolved drug therapy problems | Patient education during hospital stay | Interprofessional patient care rounds | Pharmaceutical care plan | Medication reconciliation at discharge | Patient education at discharge

Interior Health

UBC

Brooke Gessner – Resident; brooke.gessner@interiorhealth.ca
Jarred Kelly - Principal Investigator; jarred.Kelly@interiorhealth.ca

FIGURE 1. PRISMA-ScR FLOW DIAGRAM



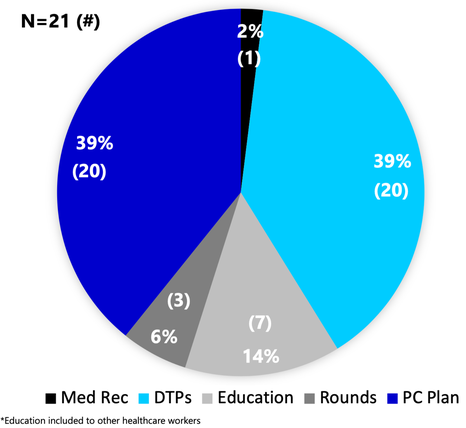
DATABASES SEARCHED: Medline, CINHAL (last searched on Jan 9/23) and Embase (last searched Jan 18/23)
Reference searching of included studies was completed.

TABLE 1. CHARACTERISTICS OF STUDIES

NUMBER OF STUDIES INCLUDED = 23*		NUMBER (%)
Population	Adult	14
	Pediatric	5
Methodology N=23	Commentary	1 (4.3)
	Quality improvement review	2 (8.7)
	Prospective observational	4 (17.4)
	Retrospective chart review	11 (47.8)
	Review article	1 (4.3)
	Survey	4 (17.4)
Setting N=18	Burn unit	2 (11.1)
	Emergency department	10 (56.6)
	Intensive care unit	2 (11.1)
	Neuroscience	1 (5.6)
	Orthopedic surgery	1 (5.6)
	Unspecified inpatient ward	2 (11.1)
Therapeutic Interventions N=16	Agitation management	2 (12.5)
	Analgesia	9 (56.3)
	Antibiotics	4 (25.0)
	Anticoagulation reversal	1 (6.3)
	Sedation	9 (56.3)
	Seizure prophylaxis	2 (12.5)
	Vaccinations	2 (12.5)
	VTE prophylaxis	3 (18.8)

* Based on the large heterogeneity between methodologies, not all studies were accounted for in all sections. The denominator for each section above, is the number of studies included in the review that provided the necessary information for that section.

FIGURE 2. cpKPIs PRESENT IN STUDIES



*Education included to other healthcare workers

RESULTS

- The studies found had significant heterogeneity and were of low-quality evidence
- The most studied therapeutic interventions were analgesia, antibiotics, sedation and VTE prophylaxis
- The data indicates that pharmacists caring for trauma patients are completing cpKPI activities
- Several gaps in the literature were identified including clear descriptions of the pharmacist's role in the interdisciplinary trauma team and which interventions are most impactful

TABLE 2. OUTCOME THEMES

A CLINICAL PHARMACIST AS PART OF THE TRAUMA TEAM	
PHARMACEUTICAL INTERVENTION	
Drug optimization	Improved pharmaceutical selection of empiric antibiotics; optimized dosing of VTE-prophylaxis
Requires drug therapy	Reduced time to sedation, analgesia, and antibiotic administration
	Increased frequency of analgesia provided post intubation
Unnecessary drug	Reduced duration of unnecessary medications without compromising patient outcomes
Adherence strategies	Improved rate of post-splenectomy vaccine adherence and awareness of vaccine schedule
INTERPROFESSIONAL TEAM EFFECTIVENESS & EFFICIENCY	
Communication	Improved the interdisciplinary trauma team's communication and the communication between the trauma team and the pharmacy department
Role	Empowering the pharmacist to co-lead pharmacotherapeutic decision making in high acuity, critical situations improved prescribing patterns and freed up other team members to focus on non-drug life-saving interventions.

LIMITATIONS

- The search strategy was challenging to develop given the lack of a definition/search term for 'trauma pharmacist' coupled with the vast array of possible interventions and locations where pharmacists work
- The lack of a clear definition for 'trauma patient' leaves room for interpretation
- Screening was not completed in 100% duplicate
- None of the included studies were conducted at Canadian hospitals

CONCLUSIONS

- Several studies were identified that support the positive impact of clinical pharmacists on the care of trauma patients, especially during resuscitation
- Future research should focus on further evaluation of perceived high-value medication interventions for trauma patients and development of a consensus guideline describing the roles of the trauma pharmacist