

Implementation Strategies to Improve the Availability, Adoption, and Prophylactic Use of Oxytocin by EMS providers for Prehospital Births



Funded Project Amount: \$15,000

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Abstract

Postpartum hemorrhage (PPH) is the most common and dangerous complication of childbirth, occurs in about 1-5% of all births¹ and accounts for 12% of maternal deaths in the US². The use of Oxytocin to prevent PPH aligns with recommendations from the World Health Organization⁶, American Academy of Family Physicians⁷, and the American College of Obstetricians and Gynecologists who concluded in its practice guidelines that use of IV or IM Oxytocin “remains the most effective medication with the fewest adverse effects,” to reduce PPH⁸. Despite this evidence and organizational endorsements, as of March 2024, Oxytocin administration in Utah for prehospital providers was only permitted by paramedics and only after PPH was recognized. It was not allowed prophylactically. At the start of this project, only 1 state was known to be considering the use Oxytocin prophylactically in the prehospital setting by EMS. This project effectively advocated for a change in the 2024 Utah state protocols. EMS protocols in Utah are not mandated and agencies can choose not to use or follow all or portions of a protocol guideline. Now that the guideline has been updated, the next step includes an educational bundle implementation strategy to EMS agencies to encourage adoption of the new protocol.

Objective

The objective of this project was to update the obstetric hemorrhage guideline for prehospital births statewide to include approval of prophylactic Oxytocin administration, and then to use implementation strategies to promote its adoption and increase its usage with fidelity.

Introduction

- PPH is the most common complication of childbirth occurring in 1-5% of all births¹ and accounting for 12% of maternal deaths in the US.²
- The use of prophylactic Oxytocin to prevent PPH aligns with national and international guidelines.^{6,7}
- Prophylactic Oxytocin can be given IV, IM, or IO
- Most state EMS guidelines do not list Oxytocin as an obstetric medication.¹⁰
- Previously Oxytocin use for prehospital birth in Utah was only permitted for paramedics and after recognition of PPH, not prophylactically to prevent PPH.



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Project Timeline

- May 2023**
1u4u activity created and funded.
- May - July 2023**
IRB creation and approval.
- Aug. - Oct. 2023**
Barriers, facilitators, and exploratory interviews with the Medical Director, Dr. Peter Taillac, Director of EMS Education and Licensure, Paramedic Mark Herrera, and BEMS guideline committee pharmacist, Dr. Greg Nelsen.
- November 2023**
Separate focus groups with clinicians and Rural EMS Directors.
- January 2024**
Separate focus groups with clinicians and Rural EMS Directors.
- February 2024**
Structured Interviews with the Medical Director, Dr. Peter Taillac, Director of EMS Education and Licensure, Paramedic Mark Herrera, and BEMS guideline committee pharmacist, Dr. Greg Nelsen.
- March 2024**
Guideline protocol proposal presented to BEMS and included evidence review, clinician and agency focus group feedback, and hospital provider survey results.
- April 2024**
Guideline protocol adopted and published by BEMS
- Sept. - Dec. 2024**
Educational materials and educational bundles were created based on an Implementation Research Logic Model (IRLM) with the goal of increasing adoption, oxytocin delivery ratio, and fidelity to the new guideline.
- Spring 2025**
Implementation strategies and measurements will start, beginning with a presentation at the Utah Rural EMS Directors conference.

Pending Strategy and Measurement

EMS clinicians will be provided an education bundle including participation in a childbirth simulation incorporating oxytocin to increase fidelity to the new guideline and provider self-efficacy.

Results

5 year prehospital Oxytocin usage prior to April 2024

Hospital Providers Agree: Oxytocin use for the active management of the third stage of labor in prehospital birth will improve safety (n=74)

Hospital Respondent Type: Physician (ER and OBGYN, 55, 74.3%); PA (Physician assistant) (1, 1.4%); Midwife (CNM/CM) (18, 24.3%)

Excerpt from Utah EMS Protocol Guidelines (changes highlighted)

OBSTETRICAL EMERGENCIES	Prior to April 2024	After April 2024
AEMT	<ul style="list-style-type: none"> Shock, Sepsis, and fluid therapy Treat seizures as per <i>Seizure Guideline</i>. 	<ul style="list-style-type: none"> Shock, Sepsis, and fluid therapy Treat seizures as per <i>Seizure Guideline</i> Oxytocin 10 units IM after newborn delivery, and confirmation there are no additional babies. If unsure, contact medical control or do not administer.
PARAMEDIC	<ul style="list-style-type: none"> Oxytocin Infusion may be started if PPH: <ul style="list-style-type: none"> IV/IO Infusion by adding 10-40 units to 500mL or 1000mL NS and titrating the infusion to decrease bleeding and patient comfort Tranexamic Acid (TXA) 1 gram IV if within 3 hours of delivery for postpartum hemorrhage. 	<ul style="list-style-type: none"> Oxytocin 10 units IM after newborn delivery, and confirmation there are no additional babies. If unsure, contact medical control or do not administer. Oxytocin Infusion may be started if bleeding continues: <ul style="list-style-type: none"> IM 10 units followed by IV/IO infusion by adding 10-40 units to 500mL or 1000mL NS and titrating the infusion to decrease bleeding and patient comfort Tranexamic Acid (TXA) 1 gram IV if within 3 hours of delivery for postpartum hemorrhage.

Conclusion*

The use of Oxytocin by Paramedics and AEMTS is safe and effective as a medication to assist in the prevention of PPH.

Hospital providers support the administration of Oxytocin medication by prehospital providers.

Partner engagement as used in this study was an effective method for an external organization to recommend and successfully change a Utah BEMS Guideline Protocol.

*This project is still in progress, so this conclusion is limited.

Future Actions

- Use an Educational Bundle to increase adoption of the new guideline by rural emergency medical services agencies.
- Use an Educational Bundle and Simulation to increase fidelity and usage ratio for clinicians in the prehospital setting.
- Data collection:
 - Adoption Rate post 2024
 - Adoption Rate after Implementation Strategy
 - Oxytocin Usage 1-year post new guideline
 - 5-year post new guideline
- Publish process paper for promoting changes to a state EMS organization
- Publish Outcomes
- Investigate other EMS protocols that may be useful for updating
- Work with Rural EMS Agencies in a community led research project

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