

Background

Alcohol dependence accounts for approximately 16-31% of all intensive care unit (ICU) admissions.¹ Patients who subsequently develop alcohol withdrawal syndrome are at an increased risk of sepsis, nosocomial infections, length of hospital stay, and mortality.² Currently, no evidence-based guidelines exist for the prevention or treatment of alcohol withdrawal in ICU patients.

Historically, benzodiazepines (BZD) have been used as the cornerstone of therapy for both treatment and prevention of alcohol withdrawal. BZDs have been shown to:

- Reduce the incidence of withdrawal seizures
- Prevent the development of delirium tremens (DT)
- Mitigate symptoms of autonomic hyperactivity such as agitation or anxiety³

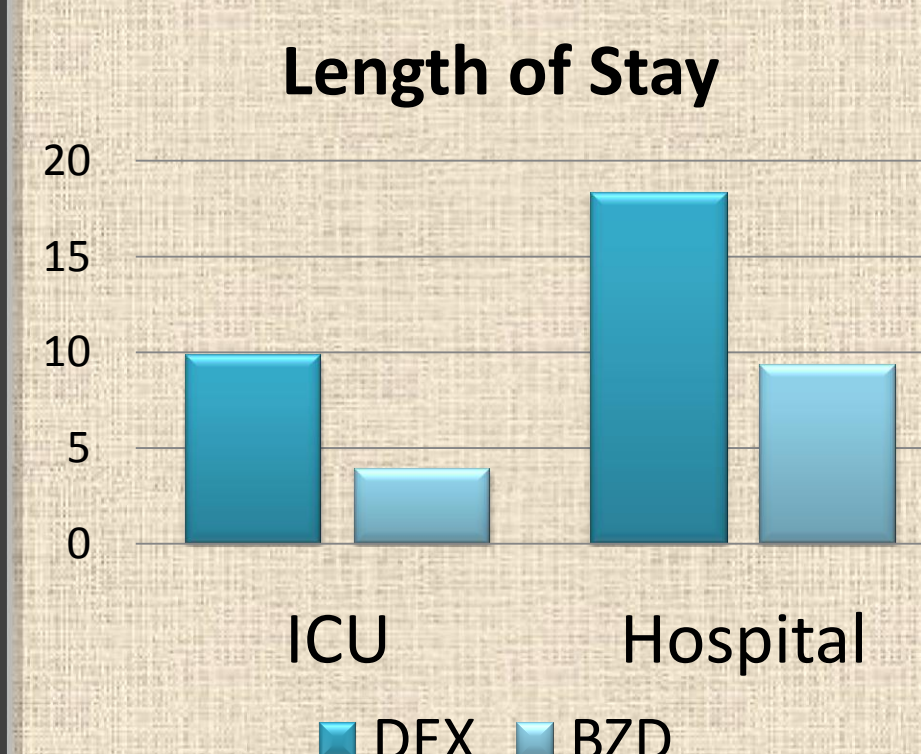
Previous research conducted at this institution reported inconsistent utilization of the current protocol, resulting in inappropriate use of dexmedetomidine (DEX) and underutilization of BZDs.⁴ Patients were advanced to DEX before an adequate trial of BZDs, which resulted in:

- Increased length of ICU and overall hospital stay
- Increased risk of over-sedation (defined as SAS score of 1 to 2)
- Increased cost to hospital per patient
- Inadequate therapy with BZDs while receiving DEX, potentially masking withdrawal symptoms

Purpose and Objectives

- **Purpose:**
 - Improve adherence to a severe alcohol withdrawal protocol by implementing (1) targeted orderset interventions, (2) enhanced electronic safeguards, and (3) healthcare provider education.
- **Objectives**
 - **Primary:**
 - ✓ Protocol adherence
 - **Secondary:**
 - ✓ BZD, DEX, and phenobarbital use
 - ✓ ICU and hospital length of stay
 - ✓ Time at target SAS

Historical Results



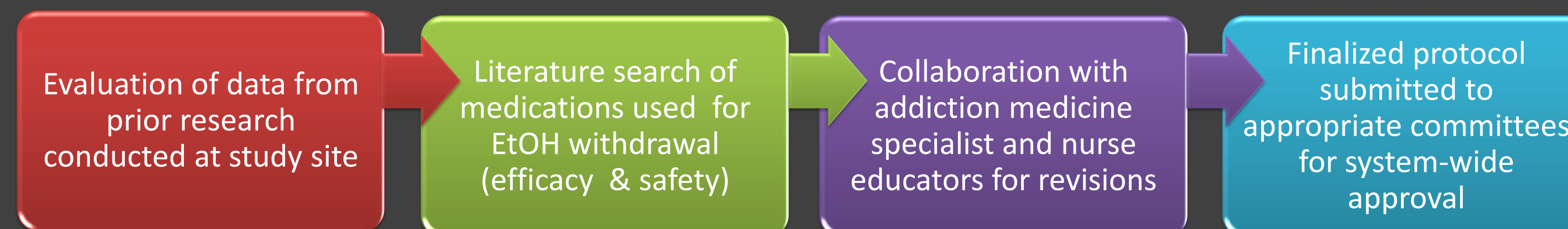
Cost Analysis	
Average cost of DEX per patient	\$3,407
Cost of extra ICU days	\$8,403
Cost of extra hospital days	\$1,849
Extra cost to hospital per DEX patient	\$13,659
Extra cost to hospital for patients in study (n=35)	\$478,065

- ✓ 21/35 (60%) of patients did not receive BZD while on DEX
- ✓ 6/35 (17%) of patients received DEX at rate > 1.5mcg/kg/hr
- ✓ 9/35 (26%) of patients on DEX had SAS scores of 1 to 2

Methods

- A single-center, retrospective observational cohort study
- WIRB approval received on 11/16/2015
- Order-set available in CPOE 2/19/2016
- Phase 1 (pre-protocol) compared to Phase 2 (post-protocol) for primary and secondary objectives

Process for Revisions

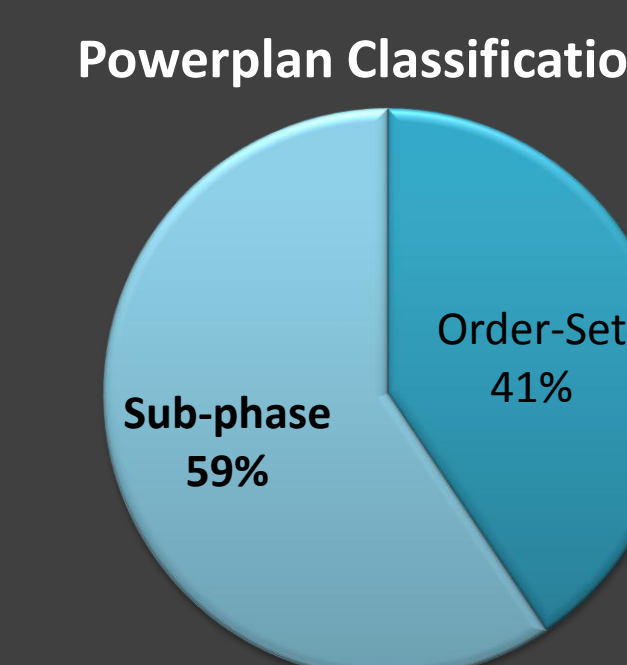
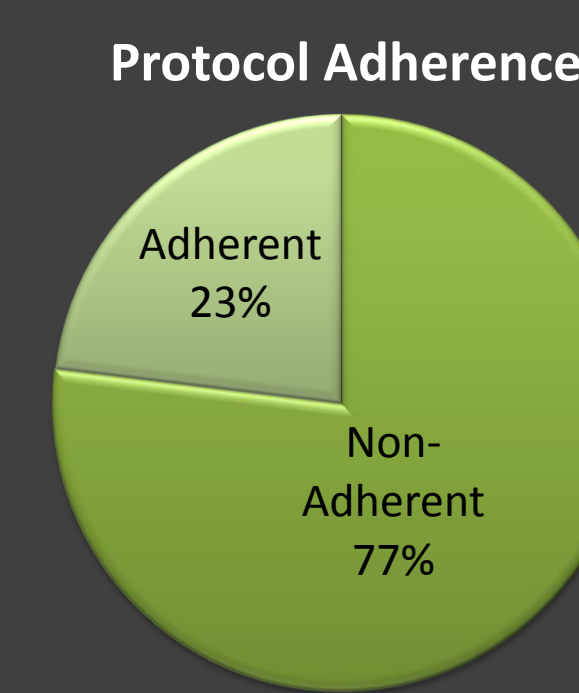


Protocol Revisions

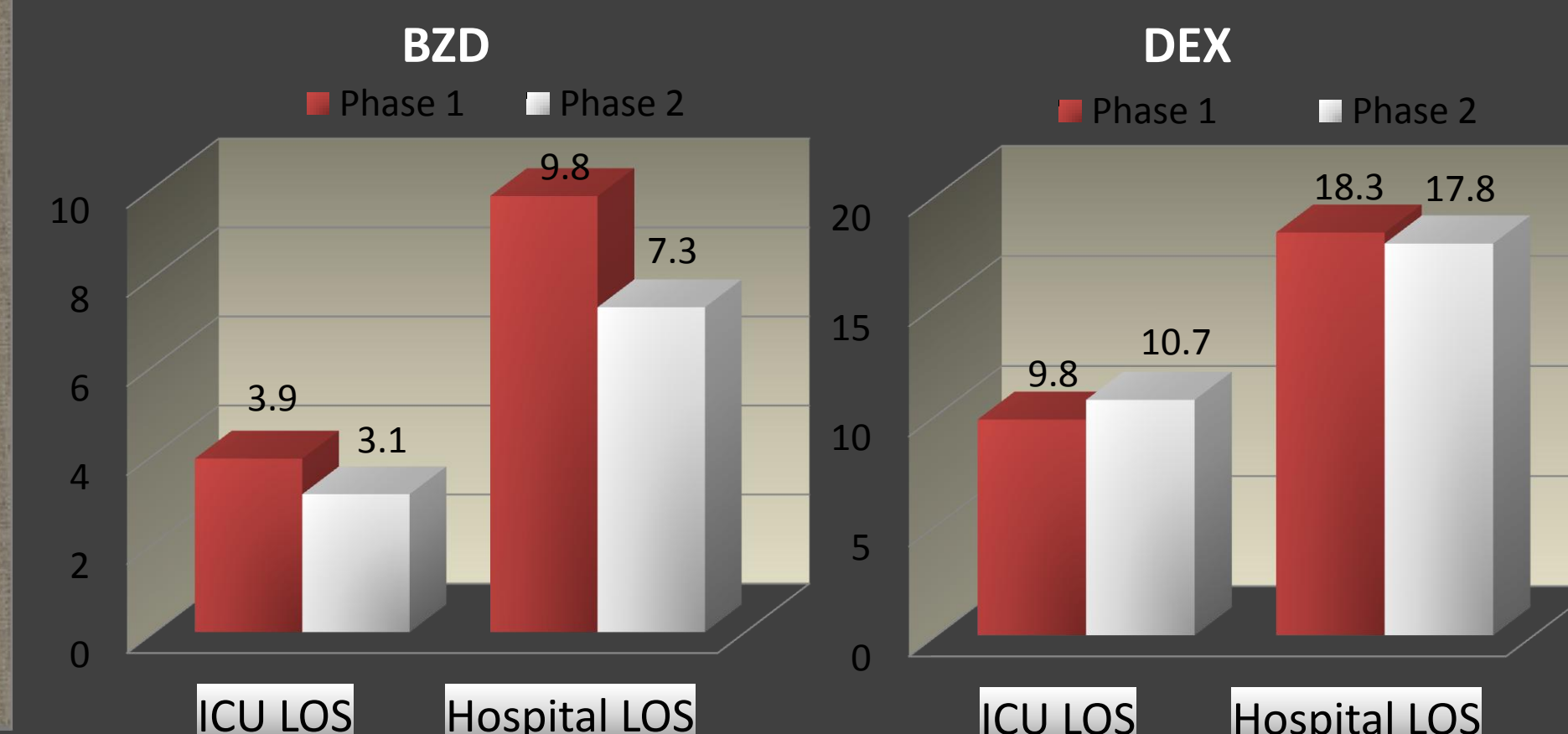


Results

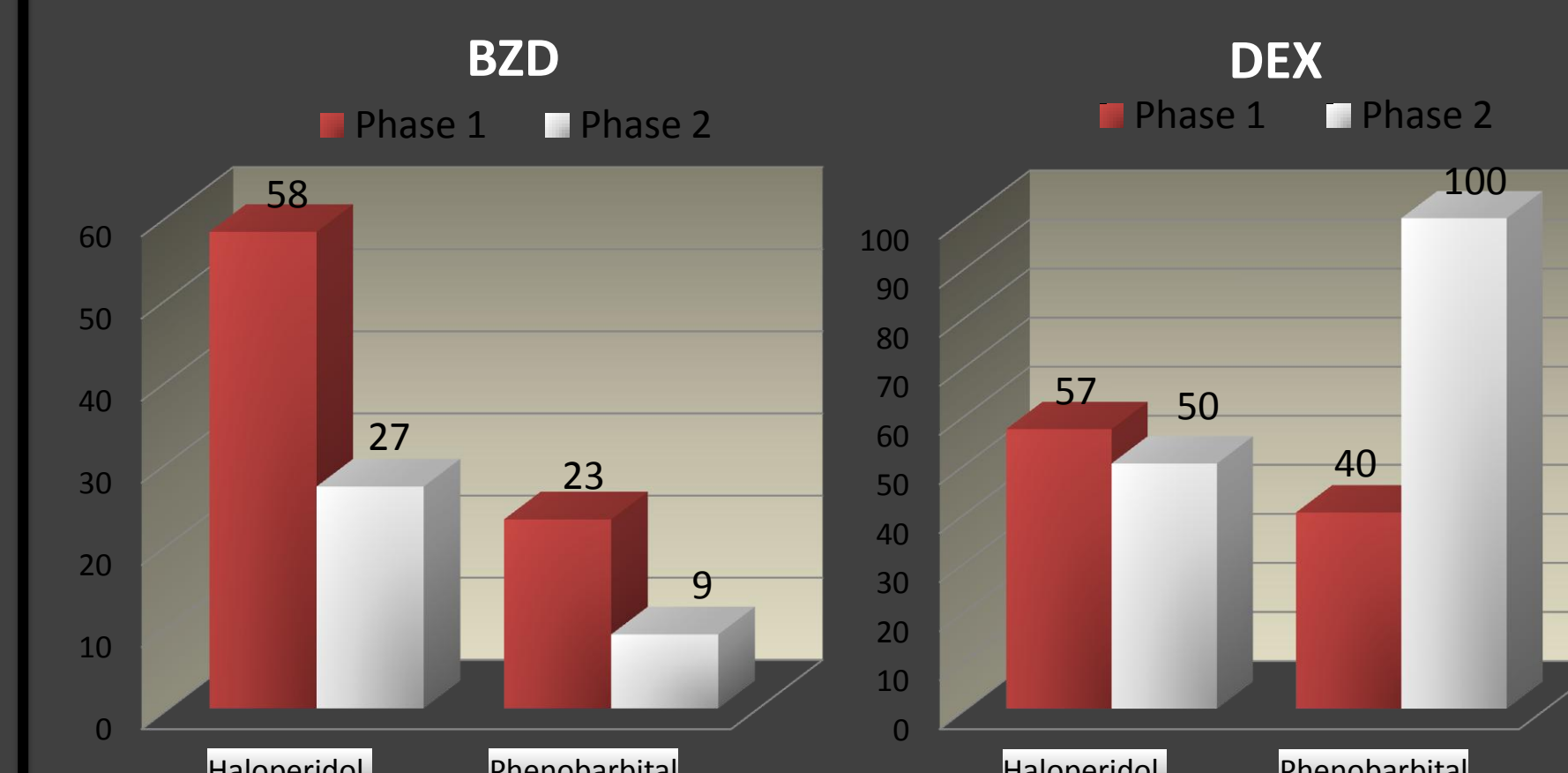
Table 1. Study Group Comparison	Phase 1		Phase 2	
	BZD (n=31)	DEX (n=35)	BZD (n=11)	DEX (n=2)
Age (avg)	45.8	45.6	48	45.5
Male (%)	90	77	90	50
Mechanical Ventilation (%)	26	49	30	50
Diazepam Selected (%)	-	-	63.6	100
Avg time to start BZD (hrs)	11.2	13.9	15.6	16.9
Avg time to start DEX (hrs)	-	72.3	-	65.7
Avg amount of BZD used (LOZ mg)	343.4	499.7	94.5	693.5
Avg amount of DEX used (mcg)	-	9403	-	8843
Avg duration of BZD (hrs)	163.2	300	92.2	387.5
Avg duration of DEX (hrs)	-	148.8	-	97.8



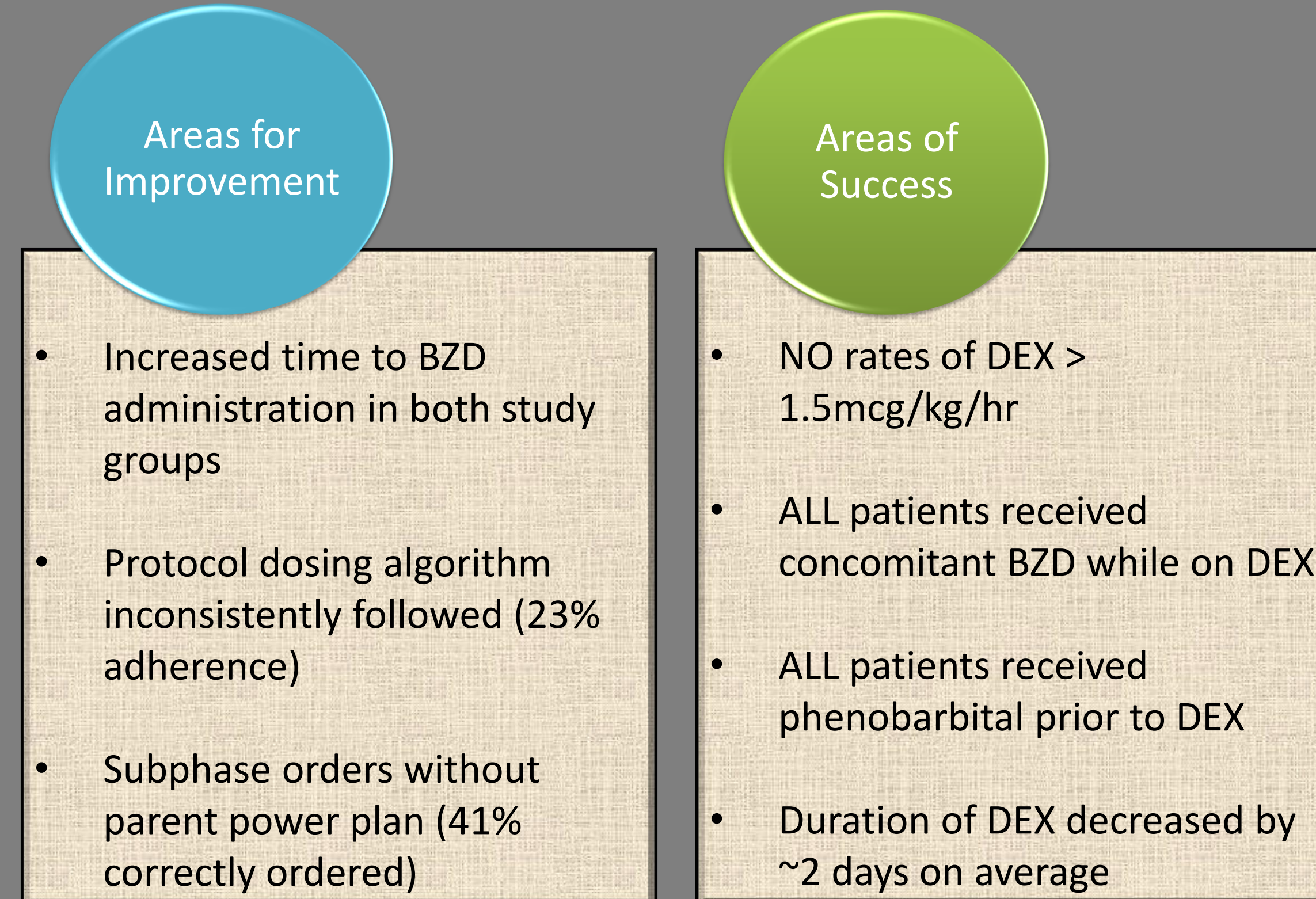
ICU and Hospital Length of Stay



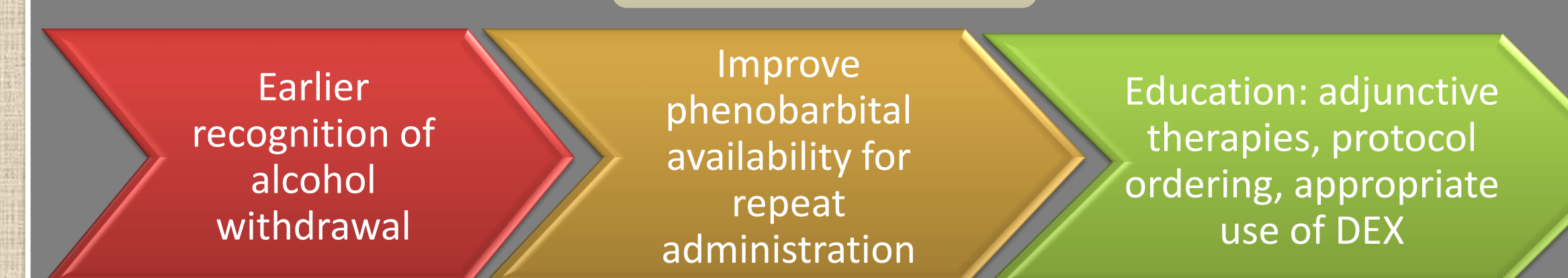
Use of Adjunctive Therapies



Conclusion



Future Direction



Discussion

Limitations:

- Small number of patients
- Time constraints
- Observational study
- Confounding variables

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Disclosures

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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