



<https://www.apsf.org/articles/pro-con-debate-color-coded-medication-labels-pro-color-coded-medication-labels-improve-patient-safety/>

## Background

- Anesthesia providers select, prescribe, prepare, administer, document, and monitor medication administration within seconds leading to high risk for medication errors
- However, limited research is available on anesthetic medication errors
- Available data indicates a medication error occurs in one in every twenty anesthetics
- Labeling of medication vials, ampules, and syringes contribute to 55% of all errors
- Over one-third of adverse drug events are preventable
- No one change alone can eliminate or reduce anesthesia medication errors
- Future and larger evidence-based studies are needed to accurately identify the full scope of anesthesia medication errors

## Clinical Question

Can medication errors in anesthesia be reduced with changes in preparation, labeling, and organizations of medications used in the anesthesia work environment?



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## Case Report

- 62-year-old-female presented for a robotic sacrocolpopexy. A general anesthetic was planned.
- After induction, the patient became hypotensive BP 78/42 HR 61
- Anesthesia provider prepared Ephedrine for administration
- An intended dose of 5 mg was given
- On return to the workstation, it was identified that 1000 mcg IV Phenylephrine had been administered
- Immediate appropriate interventions, following the error, resulted in no adverse patient outcomes



<https://lifeasacrna.com/setting-up-the-or/>

## Evidence Based Discussion

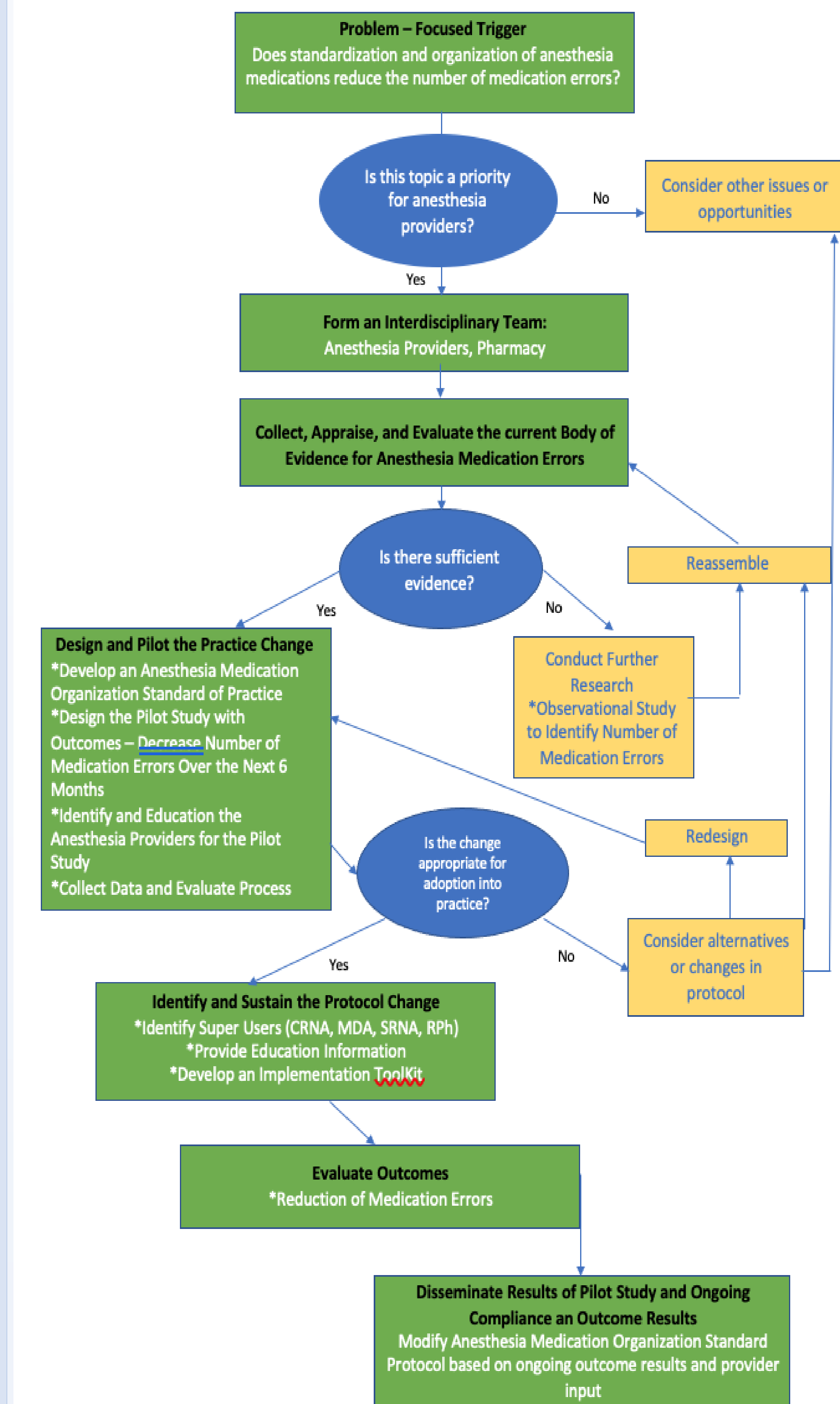
- Multiple factors contribute to medication errors and include:
  - Process of Preparation
  - Labeling
  - Organization of Medication
- Prefilled syringes with correct bolus concentration provide more accurate dosing
- Labeling with printed, legible name of medication with clear concentration could reduce errors up to 37%
- An Anesthesia Medication Template (AMT) with standardized organization decreased errors from 1.24 to 0.65 per 1000 anesthetic after implementation
- Reduction in medication errors of 21-35% occurred when multi-modal approaches were used

## Translation to Practice

- A multimodal approach is the most effective process change to reduce errors
- Evidence-based recommendations to reduce errors include:
  - Prefilled syringes – to reduce preparation and standardize dosages
  - Reduction of look-a-like vials
  - Separation (in space) of look-a-like syringes
  - Standardization of printed labels to eliminate handwritten labeling errors
  - Color coding of syringe labels and vials but caution must be taken to reduce provider trust in only color and not label
  - Organization of medication drawers and workspaces
- Implementation of an observational pilot study is planned.
- Design will include:
  - Determine patient selection criteria
  - Changes to preparation process
  - Use of pre-filled syringes
  - Labeling changes
  - Standardization of medications on and in the anesthesia workstation and drug storage compartments

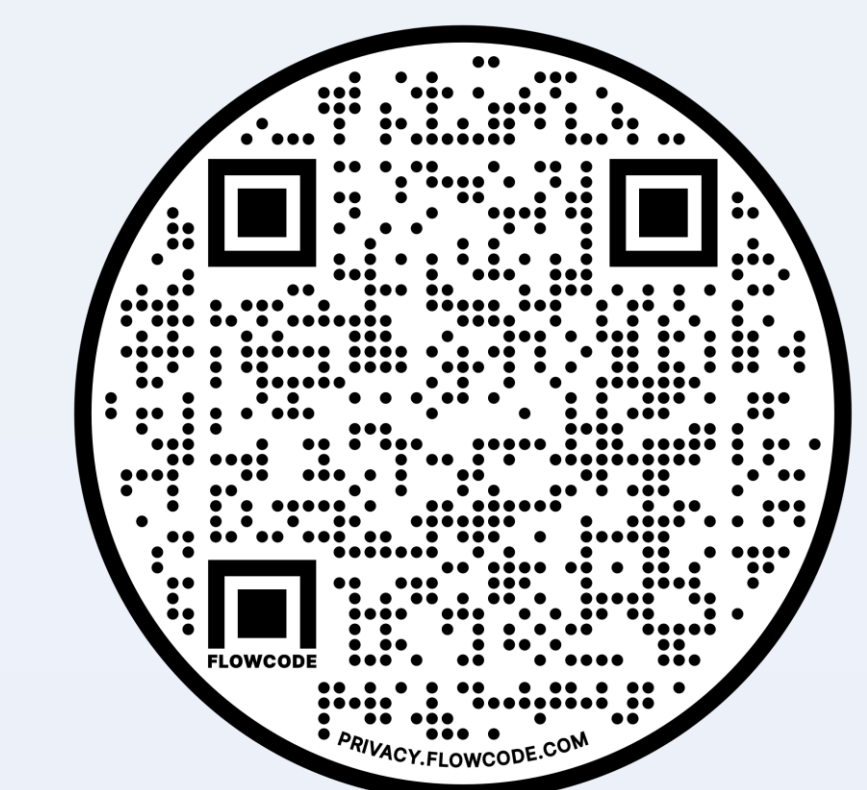
- Form multidisciplinary team to include anesthesia providers and pharmacists
- Educate all providers prior to implementation
- Implement changes with identification of “super-users”
- Evaluate outcomes:
  - Reduction in errors
  - Do changes Increase perceptions of providers on safety
  - Changes in workload capacity for providers and pharmacists

## Implementation



## References

Scan this QR code for a complete reference list.



## Questions?

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