

Introduction

- Paramedics are often required to manage violent or combative patients wherein chemical sedation may be required to assess and treat patients safely
- There are currently a number of pharmacologic agents used in the pre-hospital setting for sedation
- However, there is a paucity of evidence as to the optimal agent

Objective

- To provide a descriptive analysis of one Base Hospital's experience with combative patients
- To determine the efficacy and incidence of adverse events (AEs) following midazolam administration

Methods

- A retrospective chart review from 2 urban centers over a four-year study period (January 2012 – December 2015)
- All cases of combative patients were examined (Figure 1)

Results

- Between January 2012 and December 2015 there were 269 EMS calls wherein the patient was documented as combative, of these 186 (69.1%) received midazolam
- Multiple administration was required in 61 (33.3%) of patients
- Average total dose administered was 6.27mg (SD 3.98mg) intramuscular, 10.7mg (SD 4.00mg) intranasal, 4.95mg (SD 3.81mg) intravenous
- Midazolam administration was documented as effective in 133 (71.6%), ineffective in 28 (15.1%), and not documented in 25 (13.4%) of calls (Figure 2)
- AEs were found in 3 (1.61%) of calls:
 - Respiratory Rate of 8
 - Hypotension 88/59: increased with intravenous fluid
 - Asymptomatic bradycardia of 59
- There was a trend of increasing number of combative patients each year over the study period, with a significant difference in the number of combative calls requiring midazolam administration in 2012 and 2015 (50.0% vs 72.8%, $p = 0.007$)

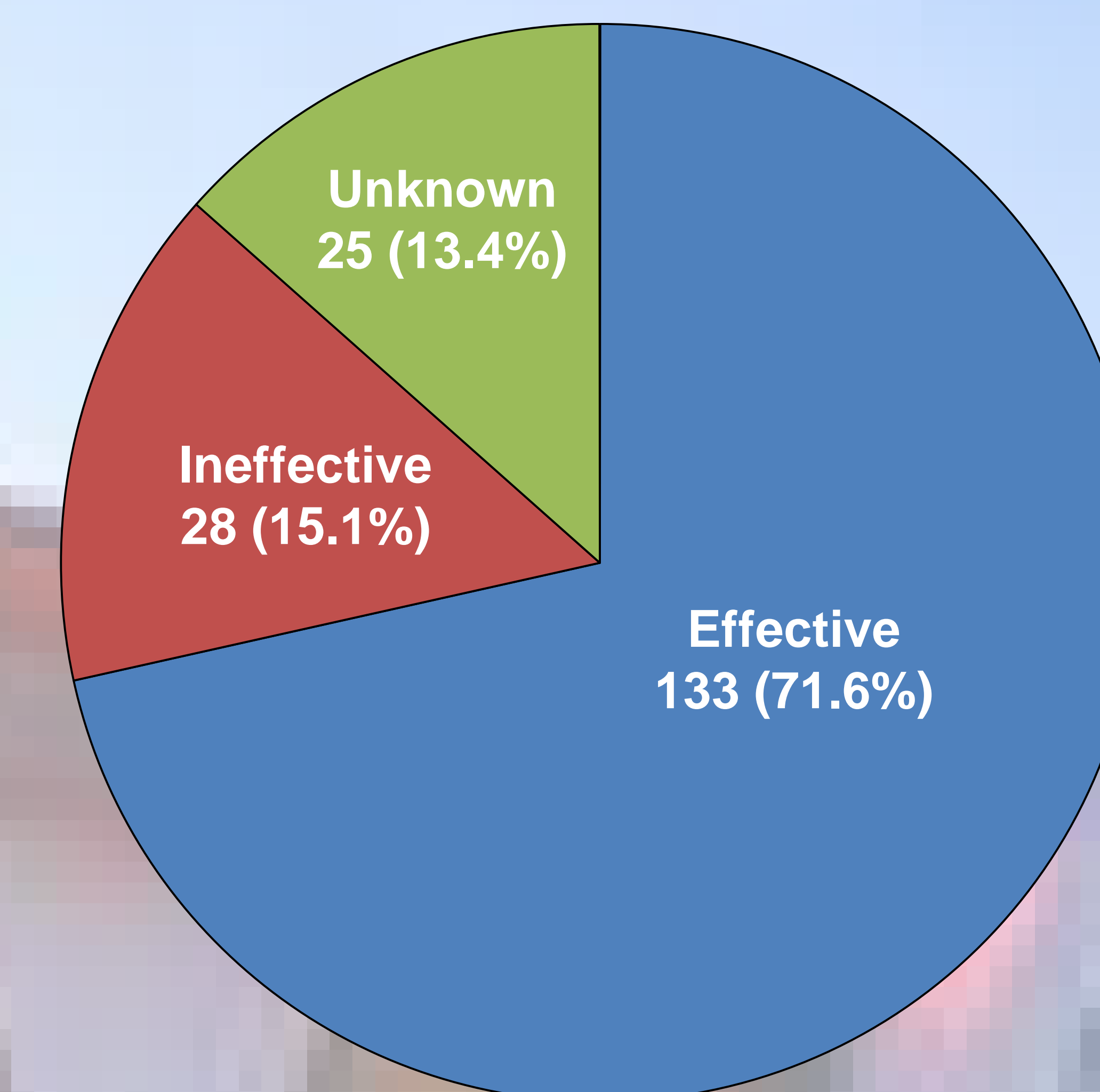


Figure 2. Effectiveness of midazolam administration on patient combativeness. As documented on the Ambulance Call Record.

Conclusions

- Pre-hospital use of midazolam for combative patients appears to be safe, with minimal AEs
- However, midazolam was ineffective in 15.1% and required multiple doses in a third of patients, prolonging the combative period and compromising paramedic and patient safety
- Further research is required to determine the optimal sedation medication for pre-hospital combative patients

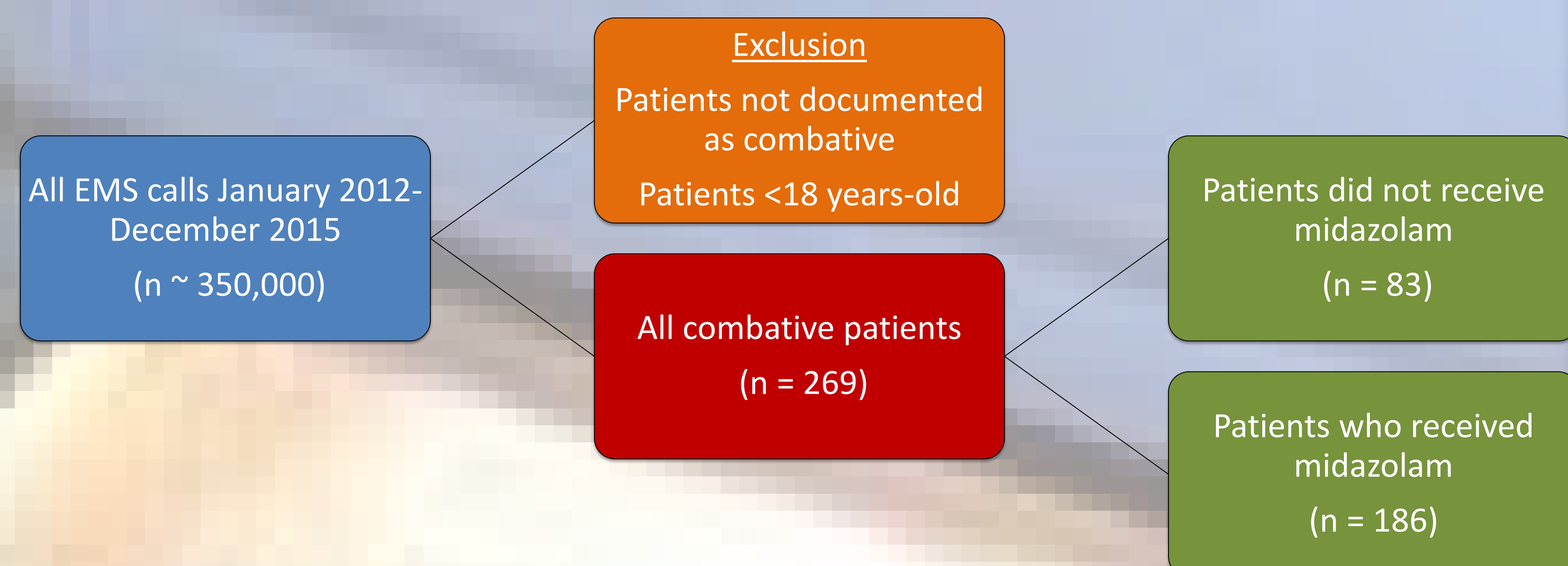


Figure 1. Derivation of the study population. EMS = Emergency Medical Services.