

## Background

The Neurocritical Care Society and American Academy of Neurology have developed expert consensus guidelines and quality measures on management of acute SE which recommend that upon seizure onset, benzodiazepines and anti-seizure medications should be administered rapidly (within 5 and 10 minutes, respectively per NCS guidelines) with appropriate weight-based dosing (1).

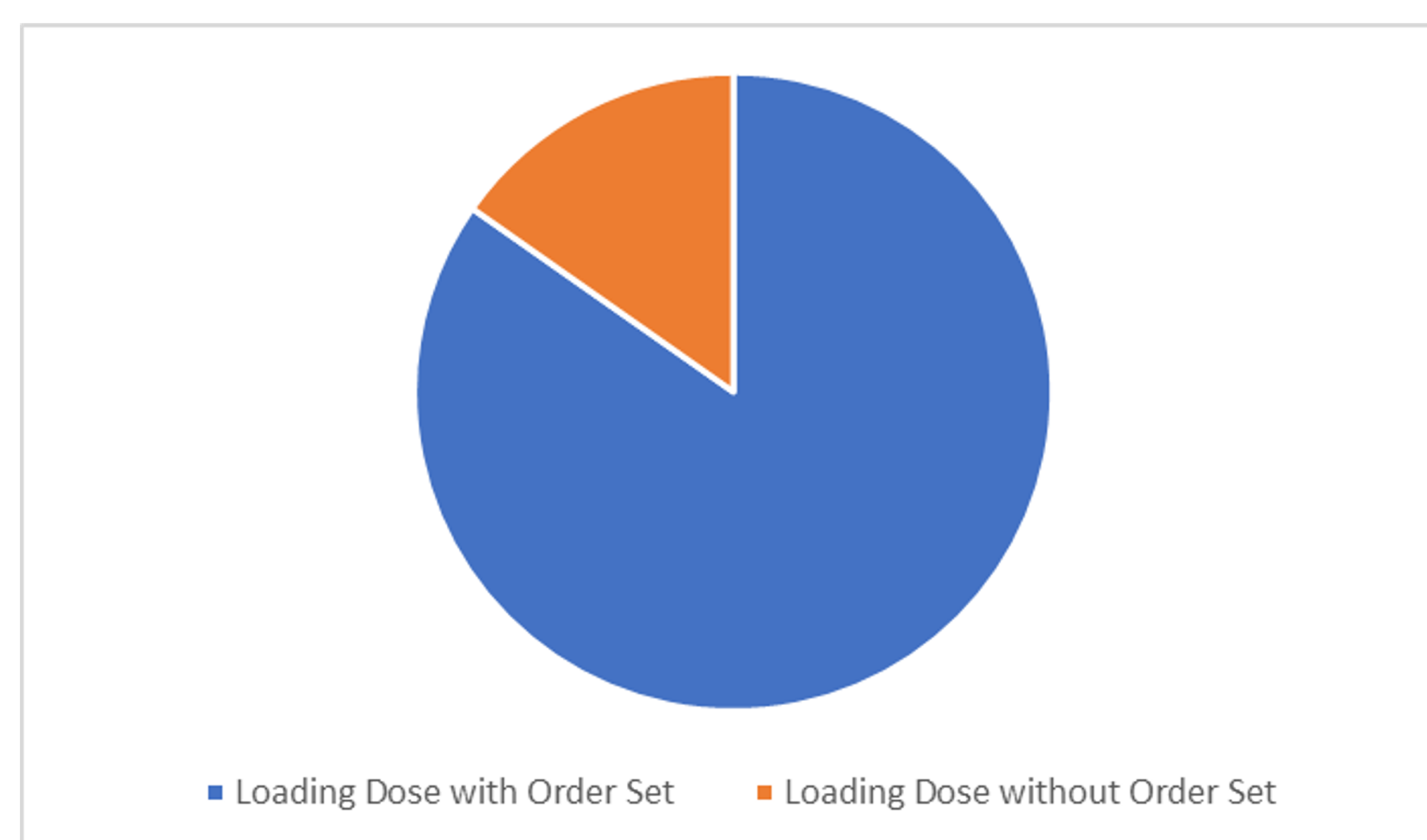
**Objective:** An order set was created to optimize the time to administration and ensure proper dosing of benzodiazepine and anti-seizure medications in patients with status epilepticus (SE).

## Methods

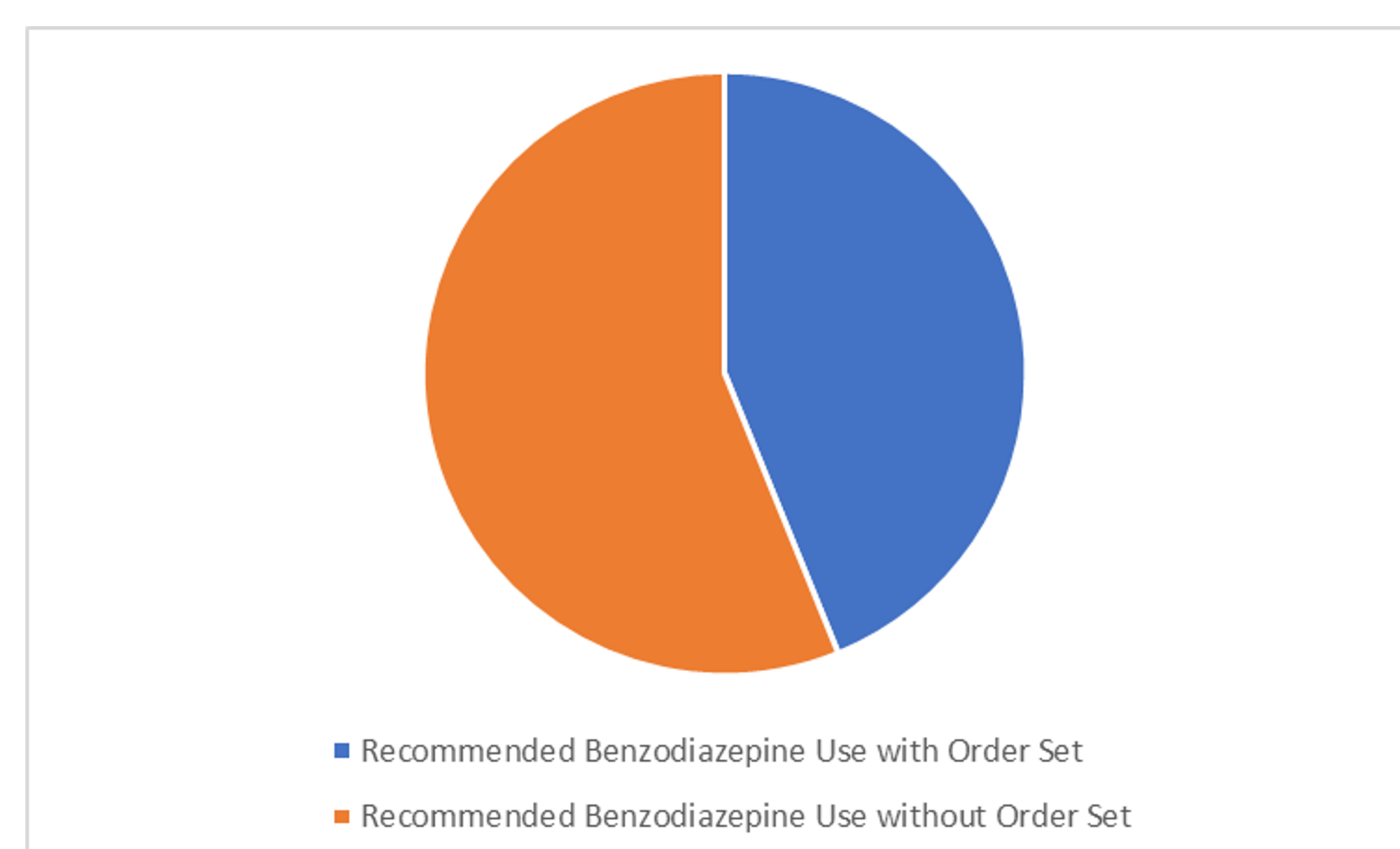
A SE order set was designed in an electronic health record which included pre-determined loading dosages of anti-seizure medications and benzodiazepines in accordance with current guidelines. Education regarding status epilepticus and order set was given to emergency medicine, neurology, neurosurgery, and neurocritical care divisions prior to order set availability in July 2023.

We tracked use of the order set in all patients with the diagnosis of SE from July 1, 2023 to October 10, 2023. Our goal was to track the proportion of patients who received benzodiazepines within 5 minutes and anti-seizure medication within 10 minutes of seizure detection, and appropriate first dose of benzodiazepine and anti-seizure medication, before and after order set implementation.

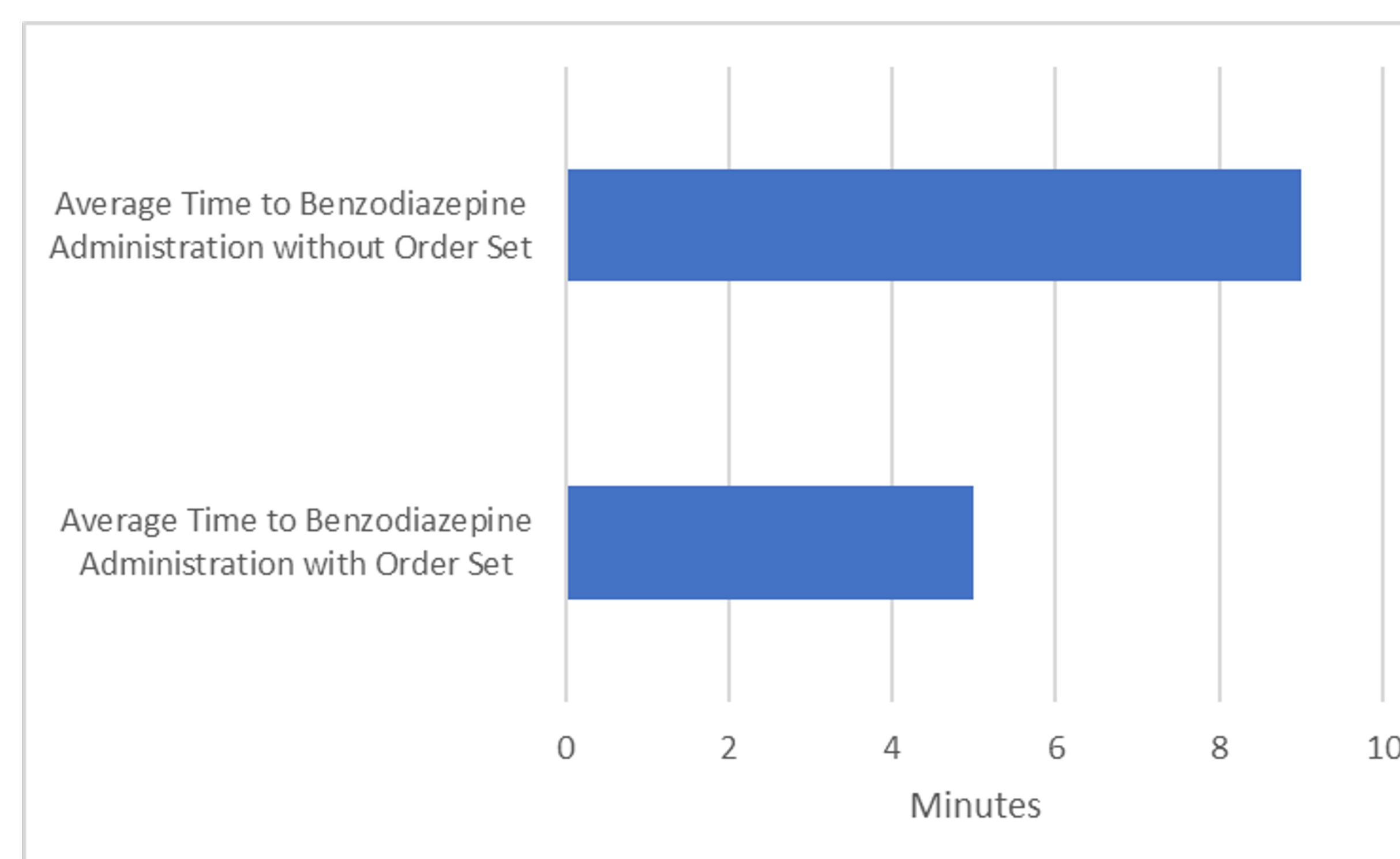
## Results



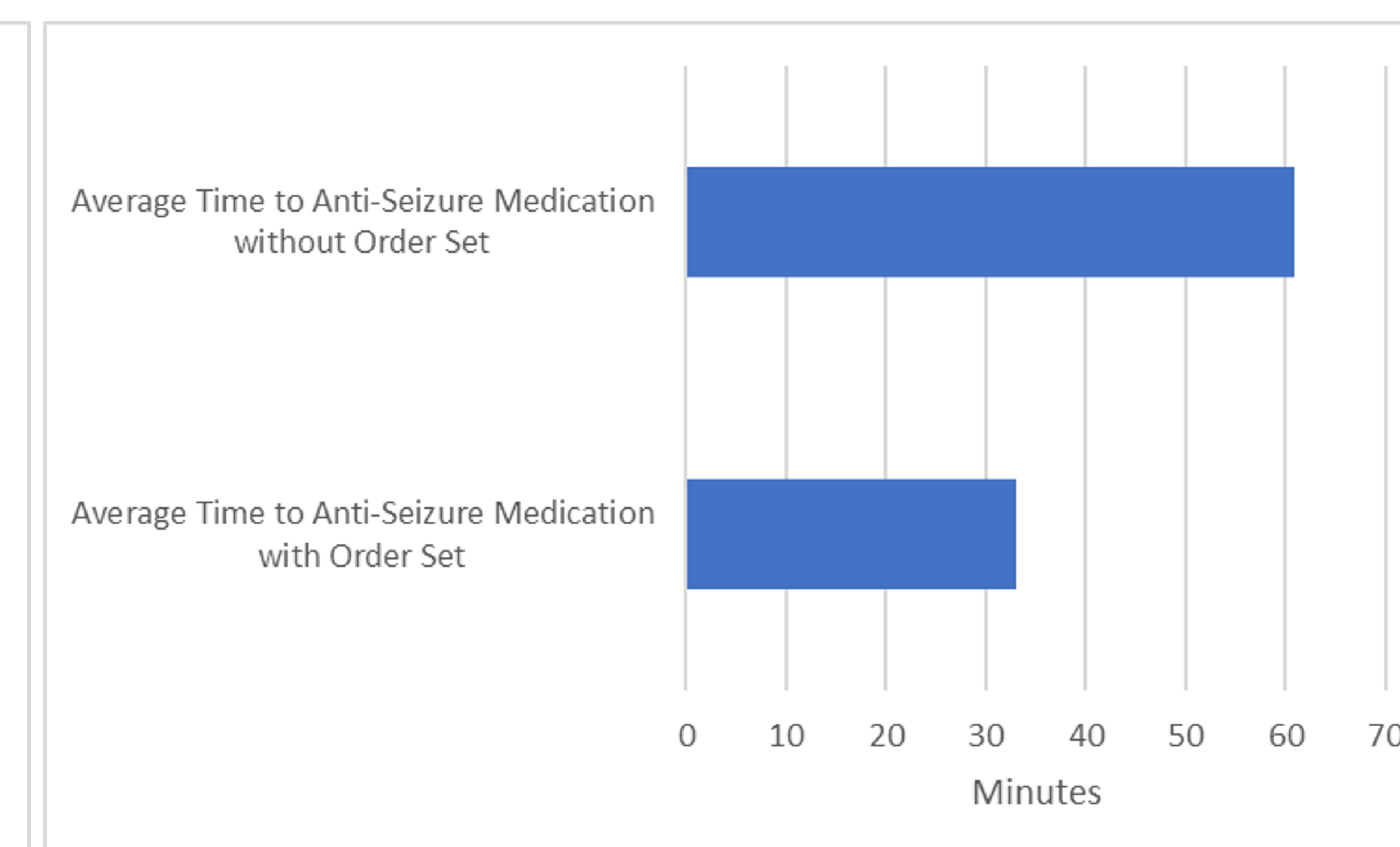
The recommended loading dose was used 100% of the time (8/8) with order set use compared to 18% (8/44) without the order set.



Recommended benzodiazepine dose (lorazepam 2-4mg IV or midazolam 5-10mg IM/IV) was used 50% of the time (2/4) with the order set compared to 64% (28/44) without.



Average time to benzodiazepine medication administration was 5 minutes with order set use compared to 9 minutes without.



Average time to anti-seizure medication administration with the order set was 33 minutes compared to 61 minutes without.

## Discussion

Our initiative shows there can be improvement in adherence to status epilepticus guideline execution in dosage and time to administration of benzodiazepines and anti-seizure medications with implementation of a standardized SE order set.

A delay in benzodiazepine treatment in patients with status epilepticus is associated with longer convulsion duration, hypotension, increased use of continuous infusions, higher mortality, and increased ICU and hospital length of stay (2, 4). Late administration of anti-seizure medication in SE is associated with a delay in return to consciousness with overall poorer outcomes and increased ICU and hospital length of stay (3, 4).

Future directions should include interval evaluations, ongoing education and multidisciplinary discussions, and outcomes analyses to increase use of status epilepticus order sets to increase adherence to guidelines and improve patient outcomes.

## References

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