Analysis of Extemporaneously Compounded Dantrolene Sodium Oral Suspension in Clinical Settings
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Purpose
Dantrolene sodium is a peripheral acting skeletal muscle relaxant. It affects contractile response by interfering with the release of calcium ions from the sarcoplasmic reticulum. Dantrolene is currently supplied as oral capsules (25mg, 50mg, and 100mg) and as intravenous powder for suspension (20mg). In the hospital setting, the ability to compound an oral suspension of dantrolene sodium can help combat the issues of drug shortages, and allow more precise dosing. It’s extemporaneously compounded to oral suspension, but there is currently no study in the literature on stability and release of these compounded suspensions. The objective of this initiative is to evaluate the dissolution of a dantrolene oral suspension compounded from oral dantrolene capsules and to carry out their long term stability.

Methods
Dantrolene oral capsules were compounded into a 5mg/mL suspension. Using Distek dissolution equipment (apparatus 2) the release of the suspension was tested at intervals, of 5, 10, 20, 30, 40, and 60 minutes. These samples were then analysed by standardized HPLC method. All samples and were kept in amber vials for the duration of the study due to dantrolene being light sensitive.

Results
It’s important to have assurance that the medication will have known and predictable properties in the body. Preliminary data showed dantrolene oral suspension 5mg/mL when compounded from oral capsules, has predictable, steady release and dissolution.

Conclusion
The results of this study show that oral suspensions of dantrolene sodium can be an effective way to deliver this medication to patients requiring unique doses or in the event of manufacture unavailability. However, further testing is needed to evaluate the stability of dantrolene oral suspension and assess the dissolution in other varied concentrations or doses.