Intravenous catheter insertion is one of the most distressing and painful procedures for pediatric patients during inpatient hospitalization. Research has shown the importance of finding and using methods to decrease this painful experience for children and their parents.

One method recently brought to market is the “Buzzy Bee” that combines cold and vibration to decrease the pain perception during IV insertion and blood specimen collection. The effects of Buzzy Bee to decrease pain during peripheral IV insertion was studied on a sample of 47 pediatric patients. This evidence-based quality improvement project was conducted over a period of six months on the Pediatric Unit at Hinsdale Hospital to evaluate if Buzzy Bee was an effective tool.

Results of this evidence-based quality improvement project did not demonstrate a statistically significant decrease in pain. However, the study did raise several questions regarding age and other variables that may indicate a need for further investigation.

- **ABSTRACT**

Participants
Participants for this study included 47 pediatric patients on the pediatric unit at Hinsdale Hospital ages 4 through 17 years. Patients to undergo a peripheral IV insertion were randomly selected to utilize the Buzzy Bee.

47 patients were included in the project:
- 28 patients used Buzzy
- 19 patients did not use Buzzy

Patients with a minimum age of 4 years and older were chosen to allow for appropriate cognitive development to be able to use the FACES or Numbers pain assessment scales.

Procedure
The patients who were randomly assigned “Buzzy” were shown the device before the procedure and educated on its use. After vein selection by the RN, the device was applied and turned on during venous access and IV insertion.

Both groups were given a pain assessment scale (either FACES or the corresponding numeric 1-10 scale) to rate the intensity of pain they experienced with the IV insertion.

**RESULTS**

Results from the study were as followed:

**Average Pain Score of Patients:**
- Not Using Buzzy = 3.58
- Using Buzzy = 5.54

The pain scores for those who used Buzzy were significantly higher than those who did not use Buzzy:

- t(45) = 2.232, p = 0.031

**Age**

**Average Pain Scores:**
- Not Using Buzzy = 10.29 years
- Using Buzzy = 12.84 years

The patients who used Buzzy were significantly younger than those who did not use Buzzy: t(45) = -2.363, p = 0.022

**DISCUSSION**

Based on the results of this project, it could be concluded that Buzzy Bee did not decrease the perception of pain during IV insertion. However, there was a statistically significant difference in age between the two groups. The group using Buzzy was significantly younger than the group not using Buzzy. Younger children are at a different cognitive development level than older children, which may attribute to a higher rating of pain (Srouji, Rathapalan, & Schneeweiss, 2010).

Younger children tend to report more pain during painful procedures than older children (Soodough et al., 1997). Further investigation needs to be done between groups that are more homogeneous as to control for confounding variables, such as age. Possible considerations would be to have a larger sample size and a more limited age group.

The prior study on Buzzy by Inal and Kellegi, 2012, had variables that were different than this project. Their study was done on blood specimen collection. This project was done on IV insertion only, which usually requires more time and needle manipulation under the skin. Their study looked at patients aged 6-12 years. This project included patients aged 4-17 years. There is a large cognitive development difference between a 4 year old and a 17 year old. Limiting age in a future investigation would possibly show more reliable results between the two groups. Another consideration would be the variances in techniques between the RN’s performing the venipuncture. The prior study used only 2 nurses trained for the study. This project included any pediatric nurse on the unit starting an IV.

This project was conducted from June through November of 2012. Increasing the time frame would possibly give a larger sample size with more homogeneous groups for comparison.

**REFERENCES**