



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

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| Name(s) Anastazia F. Capparelli | Project Number J1408 |
| Project Title Save The Babies | |
| Abstract Objectives/Goals Aluminum toxicity may cause weak bones and other problems in people. This is a greater problem in babies because they do not have the ability to get rid of aluminum or other compounds like adults because their kidney function is not mature. Recently, the FDA and ASPEN defined toxic levels of aluminum. The FDA also forced manufacturers to label their products (additives) with maximum aluminum content. I determined whether the FDA levels are being met. Methods/Materials In my project, I obtained TPN information from 26 patients. Then I found the maximum amount from each manufacturer for each additive. I calculated the aluminum amount per additive, per TPN, per day and per weight (kg). I also compared the aluminum per weight between babies and older children to determine if babies receive more aluminum. Results After testing I found that 100% of the infant patients exceeded the FDA's limits of 4 to 5 mcg/kg/day. However, only one child patient received safe levels of aluminum. Conclusions/Discussion Therefore either the manufacturers' maximum aluminum levels are too high or there is too much aluminum in the TPN additives. These calculations are from manufacturers' reported maximum aluminum levels so the actual content may be much less. The next step would be measuring the actual aluminum levels in TPNs to solve this problem. | |
| Summary Statement My project is about the toxicity of aluminum in intravenous feedings for infants. | |
| Help Received Gale Romanowski (Pharmacist) helped me obtain TPN order forms and showed me how I should calculate my data. | |