



U.S. CONSUMER PRODUCT SAFETY COMMISSION
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October 12, 2018

TRANSMITTED VIA EMAIL

Philip Carlisle
Age/Weight Task Group Chair for ASTM F15.42
100 Barr Harbor Dr.
West Conshohocken, PA 19428-2959

Re: Update to CPSC Staff letter dated August 24, 2018

Dear Mr. Carlisle:

At the meeting of F15.42 task groups on August 29, 2018, the group discussed data analysis provided by Consumer Product Safety Commission (CPSC) staff¹ in a letter dated August 24, 2018. We were glad that the task group found the data analysis helpful. As promised, we have repeated the analysis based on the newly available clothing storage unit-related fatality data in the 2018 Annual Tip Over Report.

The following pages contain analysis¹ based on child (< 18 years) clothing storage furniture tip over fatalities reported to CPSC staff from 1/1/2000 to 12/31/2017.² As requested by task group member Bill Perdue, I have added regression lines and their associated equations to supplement the regression coefficient provided in the text. In addition, several task group members asked to see histograms by year for furniture only, and televisions plus furniture; these are also provided.

We hope that the task group will find the information useful as they continue to discuss how age and child weight relate to furniture stability.

Sincerely,

Hope E J. Nesteruk

cc: Patricia Edwards, CPSC Voluntary Standards Coordinator
Rick Rosati, Chair, ASTM F15.42 subcommittee

¹ This letter was written by CPSC staff and has not been reviewed or approved by the Commission, and therefore may not necessarily reflect the views of the Commission.

² The reports are drawn from the 2018 Tip Over Report focusing on clothing storage units (*i.e.*, involving "arm," "cbd," "ward," or "portable closet.") The search identified 176 child fatalities.

Child (< 18 years) Clothing Storage Furniture Tip Over Fatalities Reported to CPSC Staff: 1/1/2000 - 12/31/2017³

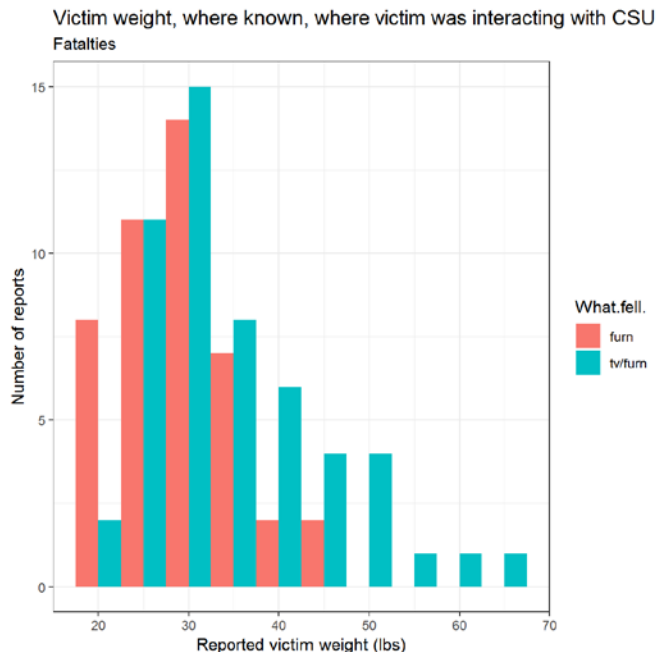
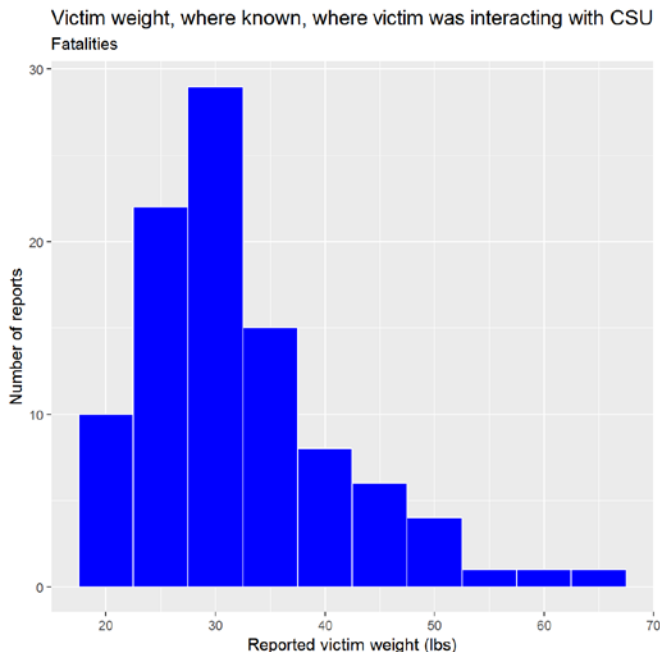
Data Summary

Of the 176 fatality reports:

- 98 (56%) reports included a **height for the CSU**;
- 98 (56%) reports included a **height for the victim**;
- 97 (55%) reports included a **weight for the victim**;
- Only 66 (38%) cases reported all three; and
- **Weight of the CSU** was unknown for almost all IDIs; therefore, no analysis is available.

Question raised: What are the weights of children interacting with CSUs that tipped over, resulting in injuries or fatalities?

Answer: For injuries, the weight of the child is not readily ascertainable. NEISS cases typically do not include the height or weight of the victim. Nonfatal incident reports rarely contain a child's weight, and those that do, often do not report a weight with an accuracy level sufficient for analysis (*e.g.*, the report states "about 40 pounds"). Fatality IDIs often contain autopsy reports, which report an exact height and weight. The two histograms below show a count of reports where the victim weight could be obtained. In 79 (44.8%) of the 176 cases, the report did not contain the weight of the child who had interacted with the CSU. In 10 of the 79 cases, the victim was not the one who had interacted with the CSU. The histograms represent what is known for the 97 incidents where the victim interacted with the CSU. Not shown are the 79 cases where the weight of the child associated with the tip over is unknown.



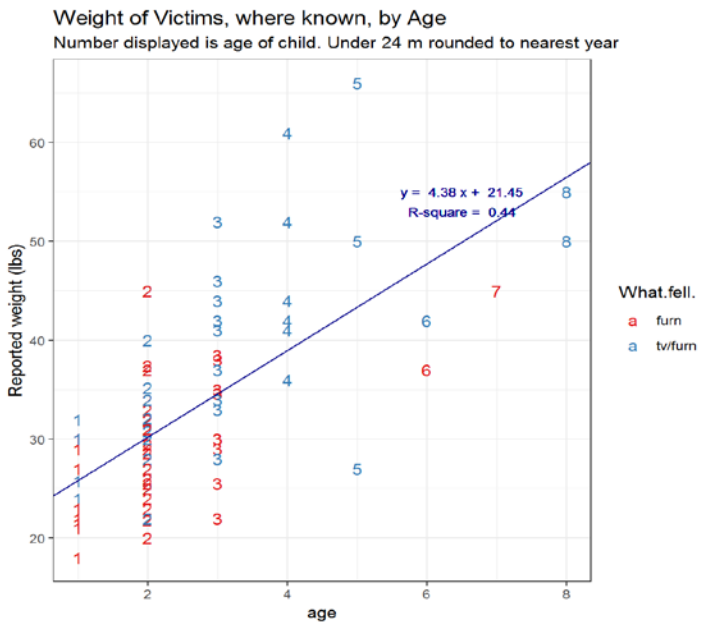
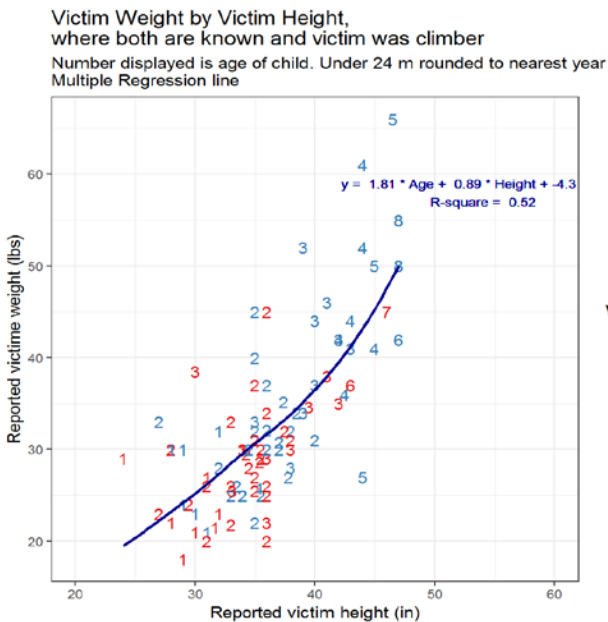
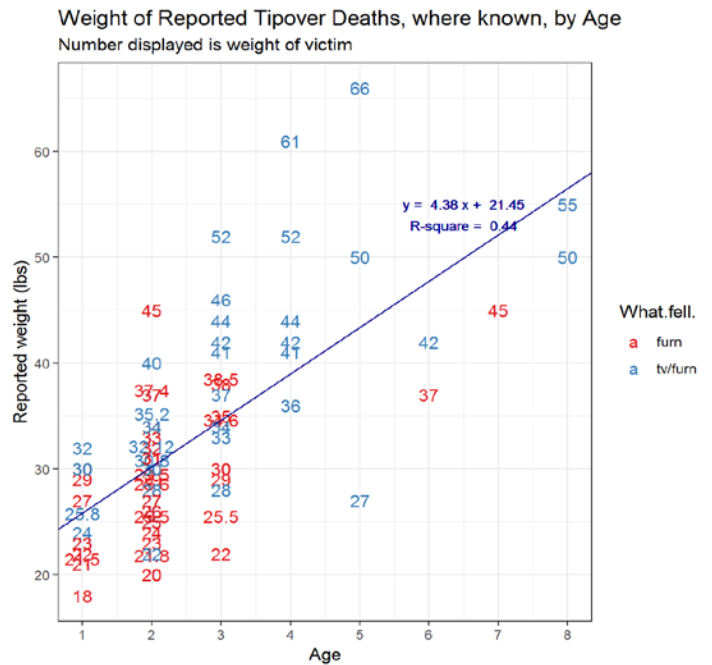
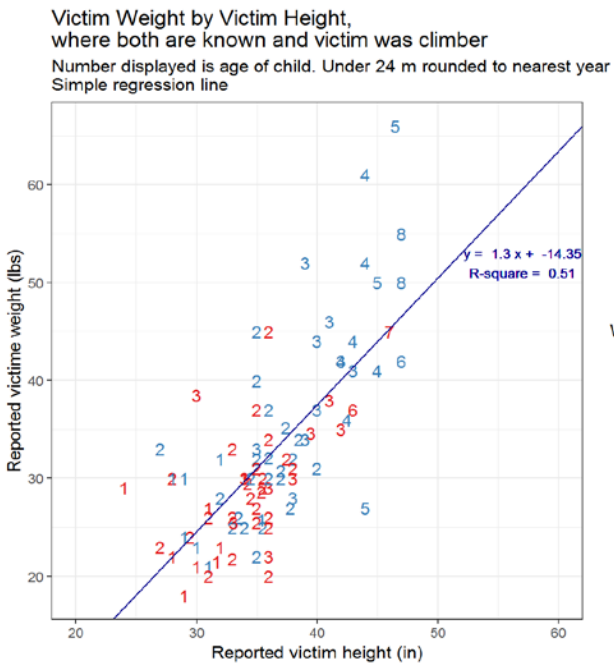
³ The reports are drawn from the 2018 Tip Over Report focusing on clothing storage units (*i.e.*, involving "arm," "cbd," "ward," or "portable closet.") The search identified 176 child fatalities. Note that in our analysis of 2016 Tip Over Report data, a "shelf" was included. This incident has been removed from the dataset.

Question raised: Do the heavier victims tend to be taller and older?

Answer:

- a) In the 97 cases where weight was known, victim weight was moderately correlated with age in years ($R^2 = 0.44$, $p < 0.01$), meaning less than half the variance in weight is related to age.
- b) In the 95 cases where both height and weight were known, there was a moderate correlation between victim weight and victim height ($R^2 = 0.51$, $p < 0.01$), with half of variance in victim weight related to victim height.
- c) Taken together, about half (adjusted $R^2 = 0.52$, $p < 0.01$) of the variance in weight is related to the combination of height and age.

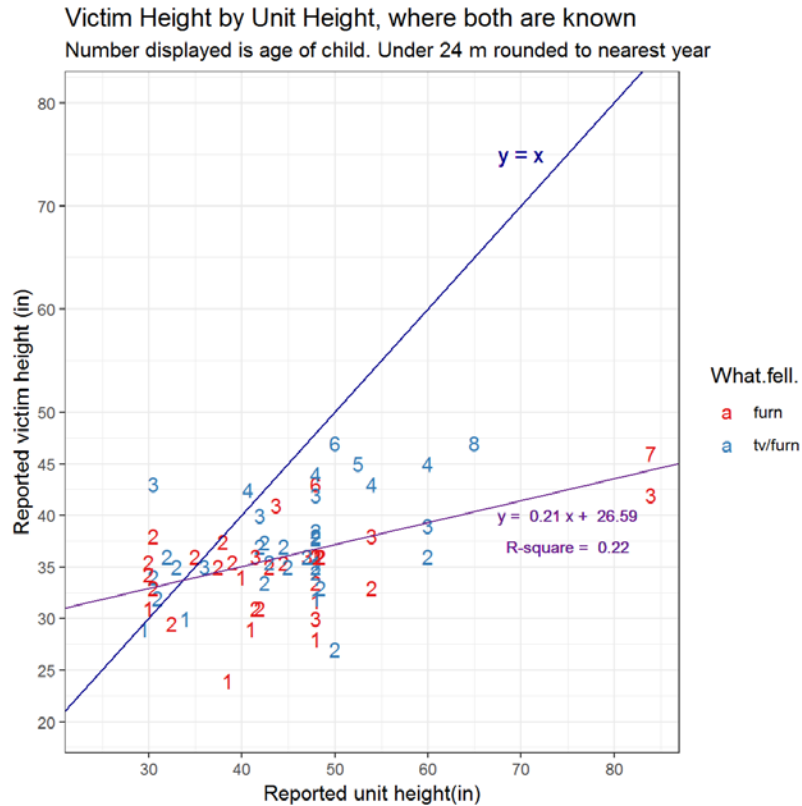
The charts below show several ways to look at the age and weight of fatal victims.



Question raised: Does the height of the victim show any relationship to the CSU height in tip over fatalities?

Answer:

There are some cases where the victim was taller than the CSU, as represented by the points above the x=y line in the victim height by unit height chart shown below. Overall, the correlation between victim height and unit height is weak. ($R^2 = 0.22$, $p < 0.01$). Please see the Human Factors memo in the 2016 Briefing Package⁴ for further discussion.



⁴ Tab D in: https://www.cpsc.gov/s3fs-public/Staff%20Briefing%20Package%20on%20Furniture%20Tipover%20-%20September%2030%202016_0.pdf

Question raised: Does the weight of the victim show any relationship to the CSU height in tip over fatalities?

Answer:

There were 61 cases where both a victim weight and a unit height were known. For those cases, victim weight is weakly correlated to unit height ($R^2 = 0.13$, $p < 0.01$)



New question raised: Can we provide histograms showing incidents by year?

Answer:

Yes, see below. Note that fatality reporting is ongoing and incident counts could increase. No trend analysis has been done on these data.

