UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

Memorandum

Date: AUG 22 2003

TO : Commission
Todd Stevenson, Secretary

THROUGH: W. H. DuRoss, III, General Counsel
Patricia M. Semple, Executive Director

FROM : Jacqueline Elder, Assistant Executive Director for Hazard Identification and Reduction
Gregory B. Rodgers, Ph.D., Senior Staff Coordinator, EC GBR

SUBJECT : Response to Question from Commissioner Moore about the way the concept of the statistical value of life was used in the preliminary regulatory analysis for baby bath seats.

QUESTION:

(1) Would you explain why a different statistical value of life was used in the baby bath seat briefing package (a range rather than the usual flat $5 million) than we have seen in previous packages? (2) Would there be any difference in the cost–benefit conclusion with regard to bath seats if the $5 million value were used?

ANSWER:

(1) As noted in the preliminary regulatory analysis for baby bath seats, most empirical estimates of the statistical value of life (SVL) have been in the $3 million to $7 million range. The $5 million estimate used in previous analyses is simply the midpoint of this range.

CPSC staff had two primary reasons for using the more general range in the baby bath seat analysis. First, we wanted to highlight the fact that estimates of the SVL are not precise and can vary. While it is often convenient to specify and work with a single value, especially when the analysis involves a large number of factors and assumptions, it is important to remember that estimates of the SVL are derived empirically and differ somewhat from study to study. The $5 million estimate used in previous analyses represents (and is justified as) an average across studies.

Second, the benefits of the proposed standard did not include injury cost savings and were limited to deaths prevented. It was, therefore, relatively easy to conduct the benefit-cost analysis by comparing the expected cost per death prevented to the general range of empirical SVL

estimates.[1] This approach allowed us to conduct the analysis without attributing a specific value to life, even if only in a "statistical" sense.

(2) If a SVL of $5 million had been used in the benefit-cost analysis, the *discussion* of the findings would have changed somewhat, but the general *conclusions* would have remained the same.

As noted in the analysis, the proposed bath seat standard was expected to address 2.8 to 4.1 deaths per 1 million bath seats in use over their expected product life.[2] Assuming the requirements of the standard increased the retail price by $10 per bath seat, the additional costs associated with the production of 1 million bath seats would be $10 million. Consequently, if a SVL of $5 million had been used in the analysis, about 2 deaths would have to be prevented for the benefits (2 deaths prevented · $5 million per death = $10 million in benefits) to match the additional $10 million in costs. Thus, if the standard addressed 2.8 deaths, it would have to be at least 71% effective (2 deaths prevented out of 2.8 deaths addressed) for the benefits to equal or exceed the costs; alternatively, if the standard addressed 4.1 deaths, it would have to be at least 49% effective (2 deaths prevented out of 4.1 deaths addressed) for the benefits to equal or exceed the costs.

The range of minimum effectiveness just described (i.e., 49% to 71%) compares with the finding in the preliminary regulatory analysis that "...the benefits of the rule would be in line with the costs even if the standard were only 50 percent effective in preventing the addressable deaths." The reason for the difference is that the upper end of the $3 million to $7 million range for the SVL would have permitted the benefits to equal or exceed the costs at a somewhat lower effectiveness rate. If, for example, we used a SVL of $7 million per death, only 1.4 deaths ($10 million in costs / $7 million per death = 1.4 deaths) would have to be prevented for the benefits to equal the costs.

Thus, while the discussion of the benefit-cost findings would have changed somewhat had we used $5 million as the SVL, the general conclusions would have remained the same. In either case, the overriding conclusion would have been that the benefits of a bath seat standard are likely to equal or exceed the costs as long as the standard is generally effective in reducing the child death rate.

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[1] To see that comparing the *cost per death prevented* to the *statistical value of life* is equivalent to comparing the costs to benefits, let V represent the statistical value of life, let D represent the number of deaths prevented by a standard, and let C represent the costs of the standard. The condition that the standard's benefits equal or exceed the costs is given $V \cdot D \geq C$. Dividing through by deaths prevented (D), we have $V \geq C/D$, which indicates that the cost per death prevented (C/D) is less than or equal to the statistical value of life (V).

[2] The 2.8 to 4.1 deaths per million bath seats represents the range of fatal incidents that can be attributed to tip-over and entrapment/submersion scenarios.