United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

VOTE SHEET

DATE: NOV 19 1996

TO : The Commission
Sadye E. Dunn, Secretary

FROM : Eric A. Rubel, General Counsel
Stephen Lemberg, Assistant General Counsel
Patricia M. Pollitzer, Attorney, OGC

SUBJECT: Options to Address Crib Slat Disengagement Hazards

Attached is a staff briefing package discussing options to address the hazard of crib slat disengagement. The staff recommends that the Commission issue an advanced notice of proposed rulemaking ("ANPR") under the authority of the Federal Hazardous Substances Act ("FHSA"). Tab F of the package contains a draft Federal Register notice with an ANPR.

Please indicate your vote on the following options.

I. Approve the ANPR as drafted.

_____ _____
(Signature) (Date)

II. Approve the draft ANPR with the following changes (please specify).

_____

_____

_____

_____ _____
(Signature) (Date)

NOTE: This document has not been reviewed or accepted by the Commission.
Initial mle Date 11/19/96

CPSA 6 (b)(1) Cleared
11/19/96
No Mfrs/PrvtLblrs or Products Identified
__ Excepted by _____
__ Firms Notified,

III. Do not approve the draft ANPR.

_____ _____
(Signature) (Date)

IV. Direct the staff to continue working with ASTM to modify the F1169 crib standard.

_____ _____
(Signature) (Date)

V. Direct the staff to pursue corrective action plans for hazardous cribs under section 15 of the FHSA.

_____ _____
(Signature) (Date)

VI. Take other action (please specify).

_____

_____

_____

_____ _____
(Signature) (Date)

Attachment

OPTIONS TO ADDRESS CRIB SLAT DISENGAGEMENT HAZARDS

November 1996

For Further Information, Contact:

Deborah Kale Tinsworth
Directorate for Epidemiology and Health Sciences
(301)504-0470, Ext. 1276

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Letter from John Preston, P.E., Directorate for Engineering Sciences, CPSC, to Mr. William S. Suvak, P.E., Chairman, Crib Section of ASTM Subcommittee F15.18, November 8, 1995

Letter from John Preston, P.E., Directorate for Engineering Sciences, CPSC, to Mr. William S. Civic, P.E., Chairman, Crib Section of ASTM Subcommittee F15.18, July 10, 1996

List of Crib Slat Disengagement Incidents - 1/1/90 to 12/30/95 (prepared by John Preston, CPSC/ES, 6/12/96)

Chronology of Crib Slat Activities (prepared by John Preston, CPSC/ES, 10/11/96)

TAB D CPSC Memorandum from Carol Cave, Compliance Officer, Division of Corrective Actions to Debbie Tinsworth, Project Manager, Division of Hazard Analysis, entitled, "Crib Slat Disengagement," October 17, 1996

CPSC News Release # 91-114, "Childcraft Cribs with Loose Slats Recalled," August 22, 1991

CPSC News Release # 96, "CPSC and Cosco, Inc. Announce Crib Recall," December, 1995

CPSC News Release #95-076, "CPSC, Okla Homer Smith Furniture Announce Crib Side Rail Recall, February 10, 1995

CPSC News Release #95-088, "CPSC, Welsh Juvenile Products Announce Crib Side Rail Recall, March 1, 1995

Sample Letter from David Schmeltzer, Assistant Executive Director, Office of Compliance, CPSC, to Crib Manufacturers and Importers, November 15, 1995

Letter from Marc Schoem, Director of Corrective Actions, CPSC, to Mr. William L. MacMillan, Chairman, Juvenile Products Manufacturers Association, Inc., re: "Request for Quality Control Plans," February 8, 1996

TAB E CPSC Memorandum from Robert Hundemer, Division of Engineering Laboratory (LSEL), to Deborah Tinsworth, Division of Hazard Analysis (EHHA), entitled, "Crib Slat Testing," October 31, 1996

TAB F Draft Consumer Product Safety Commission Advance Notice of Proposed Rulemaking for Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs: Request for Comments and Information, November 19, 1996

EXECUTIVE SUMMARY

This paper provides the U.S. Consumer Product Safety Commission (CPSC) with options to address hazards related to the structural integrity of slats on cribs.

From January 1985 to September 1996, CPSC received information about 138 incidents in which crib slat disengagement may have been involved. Of these, 12 resulted in deaths, 5 resulted in injuries, and 121 resulted in no injuries. Neither existing Commission regulations nor the current voluntary standard for cribs appear to adequately address these risks of death and injury.

Options for remedial efforts in this area include:

1. Initiate a rulemaking proceeding to develop mandatory performance requirements addressing the hazards posed by crib slat disengagement on full-size and certain (non-mesh) non-full-size cribs by publishing an Advance Notice of Proposed Rulemaking (ANPR).

2. Direct the staff to continue to work with ASTM to enhance the structural integrity requirements of the F1169 crib standard.

3. Direct the staff to pursue recalls or corrective actions of hazardous cribs on a case-by-case basis using its authority from section 15 of the Federal Hazardous Substances Act (FHSA).

4. Take no further action to address crib slat disengagement hazards at this time.

The Commission staff recommends the publication of an ANPR to address hazards associated with slat disengagement on full-size and certain (non-mesh) non-full-size cribs.

Staff believes that performance tests with increased ability to predict crib slat failures are needed, based on the results of CPSC laboratory testing. Although the industry claims that the hazard exists because of poor quality assurance, it is apparent from a number of recalls involving several manufacturers that this is not an isolated problem. The ASTM crib subcommittee is currently evaluating a CPSC staff proposal for a revised test method. However, staff alerted the subcommittee to this hazard over one year ago, and incidents have continued to occur. Staff believes that the ASTM subcommittee has had sufficient time to take action in this area.

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: NOV 19 1996

TO : The Commission
Sadye E. Dunn, Secretary

Through: Eric A. Rubel, General Counsel
Pamela Gilbert, Executive Director

FROM : Ronald L. Medford, Assistant Executive Director, RLM
Office of Hazard Identification and Reduction
Deborah K. Tinsworth, Project Manager,
Directorate for Epidemiology and Health Sciences

SUBJECT: Options Paper: Crib Slat Disengagement

This paper provides the U.S. Consumer Product Safety Commission (CPSC) with options to address hazards related to the structural integrity of side rail slats on cribs. It includes incident data, current product and market information, the status of ASTM voluntary standards activities, relevant CPSC compliance activities, the results of laboratory testing, and a draft Advance Notice of Proposed Rulemaking (ANPR).

I. BACKGROUND

In 1973 and 1976, CPSC published mandatory standards for full-size and non-full-size cribs, respectively. These standards include requirements that address side height, slat spacing, mattress fit, and other factors. In 1982, these standards were amended to include mandatory requirements that prohibit hazardous cutouts in crib end panels. CPSC was also involved, through ASTM (formerly the American Society for Testing and Materials), in the development and revision of voluntary standards for cribs. First published in 1986 and 1989, these standards address additional hazards such as structural and mechanical failures on full-size cribs, and entanglement on cornerposts of both full-size and non-full-size cribs, respectively. CPSC is currently participating in the development of an ASTM standard that addresses structural and mechanical failures on non-full-size cribs.

CPSA 6 (b)(1) Cleared
11/19/96
No Mfrs/Prvtlbl
Products Identified
Excepted by
Firms Notified
Comments Incorporated

NOTE: This document has not been reviewed or accepted by the Commission.
Initial _____ Date 11/19/96

In recent years, CPSC staff has become aware of incidents involving crib slat disengagement, some of which resulted in death and injury from suffocation and strangulation. The CPSC mandatory standards contain no performance requirements to address this hazard, and staff believes that the requirements included in the ASTM standard are inadequate. Staff first alerted the ASTM subcommittee to this hazard at a March 28, 1995, meeting and, in an October 20, 1995, letter, suggested that a slat strength test in a Canadian crib standard be added to the ASTM standard. Manufacturers rejected this suggestion because they maintained that the problem was poor quality control that would not be detected by the slat strength test. The ASTM crib subcommittee is currently evaluating a CPSC staff proposal for a revised test method that was presented at a September 1996 meeting. Staff believes that the ASTM subcommittee has had sufficient time to take action on this issue.

II. DISCUSSION

A. Incident Data

From January 1985 to September 1996, CPSC received information about 138 incidents in which crib slat disengagement was reported (TAB A). Of these, 12 involved deaths, 5 involved injuries, and 121 involved no injuries.

These incidents included cases in which crib slats were reported to be disengaged, loose, missing, or "broken." Cases were not included where it appeared that the incident involved poor maintenance (including missing or improper hardware), misuse, or "antique" cribs. Because available information did not always permit a conclusion as to whether the incident occurred because of lack of structural integrity or other reasons, Division of Hazard Analysis (EHHA) staff suggested that caution be used in interpreting these numbers. However, staff also noted that this was not a complete count because all such incidents are not reported to the Commission, and data collection is still in progress for some sources that provide this information.

B. Product and Market Information

Currently, there are at least 20 firms manufacturing or importing infant cribs (TAB B). In 1995, about 2.2 million new cribs were sold, amounting to an estimated $350 million in retail sales. Assuming a product life of 10 to 25 years, there may be 23 to 48 million cribs available for use, although only about 10 million cribs would be in use at any given time. A leading juvenile product trade publication reported that the average expenditure for a crib or cradle in 1993 (the latest year for which such information was available) was about $160.

C. Voluntary Standards Activities

The ASTM F1169, Standard Consumer Safety Performance Specification for Full-Size Cribs, was published in 1989 in response to a CPSC staff request to address reports of structural and mechanical failure of cribs. To assure that cribs are produced in accordance with ASTM F1169, the Juvenile Products Manufacturers Association (JPMA) established a

third party certification program for these products. However, this program differs from other juvenile product certification programs in that the crib manufacturer is certified to conduct in-house tests.[1] This program does not provide assurance that all units of a given model will have acceptable quality to prevent slats from detaching during use, in that variations may occur in the manufacturing process. Reportedly, at the time the certification program was developed, consideration was given to requiring quality assurance testing as part of the JPMA certification program, but this was opposed by crib manufacturers and therefore, was never adopted.

At a March 28, 1995, meeting, CPSC first alerted the ASTM crib subcommittee to the crib slat hazard, in response to two 1995 product recalls in which JPMA-certified cribs had slats or spindles disengage during use. CPSC staff then sent an October 20, 1995, letter to the ASTM crib subcommittee chairman requesting that the subject of crib slat separations be placed on the agenda for the next meeting and that the subcommittee consider including in the ASTM crib standard, a requirement for crib slat strength that is the same as one found in the Canadian standard for cribs and cradles (TAB C). This Canadian requirement applies a twisting force to each slat or spindle to insure that they are secure and cannot rotate. Rotation of slats with a rectangular cross section could, during use, result in an increase in the space between individual slats, which in turn, could result in an entrapment hazard. At an October 26, 1995, subcommittee meeting, the Canadian requirement and test for crib slat strength were discussed and manufacturers were urged to perform this test for further discussion at the next meeting. The JPMA certification committee agreed to review the crib slat issue.

In a November 8, 1995, letter to the chairman of the crib subcommittee, CPSC staff requested a December 12, 1995, interim meeting of crib manufacturers (TAB C).

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[1]Upon notification by JPMA that a crib manufacturer or distributor has applied for certification, Detroit Testing Laboratory, Inc. purchases one crib model selected at random from the open market and tests it according to the ASTM standard.

For certification, the manufacturer or distributor must test at least 15 percent of its models (one model minimum) quarterly and send results to Detroit Testing Laboratory for review, compilation, and retention. In addition, all models must be tested every year at least once and test reports are filed. Any new model is tested in the quarter that it is introduced. If a model previously tested is modified in a manner that may affect compliance to the standard, the manufacturer or distributor will retest, at least repeating the appropriate tests, and keep the test results on file, available to JPMA or to Detroit Testing Laboratory, Inc. upon request.

To ensure that the design and construction of selected production models conform to the ASTM standard, Detroit Testing Laboratory conducts in-plant visits, at approximately 12 month intervals, and inspects cribs from the production line or out of stock on a random basis. Specimens of one to five different models are selected and witness-tested by Detroit Testing Laboratory.

Manufacturers responded by scheduling a meeting on January 30, 1996 at ASTM. At this meeting, CPSC staff distributed a table summarizing 62 crib slat separation incidents.[2] At this time, manufacturers were unanimous in expressing their belief that the Canadian torque test would not always detect unsatisfactory glue joints, and that the slat problem may be confined to manufacturers who may not be testing frequently enough during the manufacturing process. Manufacturers stated that improving quality assurance procedures during production was the appropriate means to address this problem.

At subcommittee meetings in March and May 1996, CPSC staff provided additional information about crib slat incidents, including data that showed most of the 62 incidents involved relatively new cribs (TAB C). Twenty-six different manufacturers or distributors were reported for the cribs involved in these incidents. Manufacturers indicated that they were addressing crib slat disengagement by evaluating their manufacturing and quality control procedures. The subcommittee recommended that CPSC concentrate its efforts on individual manufacturers who have experienced slat failures.

Following the May 1996 meeting, CPSC staff decided to conduct some limited testing at our laboratory to evaluate the adequacy of the current ASTM structural integrity tests and to determine what new requirements might be adopted into the standards that would eliminate the loose/broken slat hazard. Based on the results of this testing of new cribs with loose slats (discussed below) using the procedures of the current ASTM F1169 standard, CPSC sent a July 10, 1996, letter to the ASTM subcommittee chairman again expressing concern that tests for integrity of crib side panels in the standard are not adequate (TAB C). At a September 26, 1996, subcommittee meeting, CPSC staff presented its test results, together with a proposal for an amendment to the ASTM standard. After much discussion, the subcommittee chairman asked crib manufacturers to perform tests in accordance with the CPSC proposal, and be prepared to discuss the proposal at the next meeting which was scheduled for February 24-26, 1997.

On October 8, 1996, CPSC staff called the ASTM crib subcommittee chairman and requested an interim meeting in an effort to speed up the standards development process. The chairman responded that he would try to schedule a meeting in January 1997.

A detailed chronology of ASTM crib slat activities is presented in TAB C.

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[2]These 62 incidents occurred from January 1, 1990, to December 31, 1995. In these cases, it was reported that slats separated or detached from the crib side, without mention of breakage. The 138 incidents described previously occurred over a longer time period, between January 1, 1985 and September 19, 1996. These include the 62 cases presented at the ASTM subcommittee meeting, as well as additional cases in which slat breakage may have occurred. Incidents reported to have involved "broken" slats were included because it was felt that many were likely to have involved slats that disengaged during use. In a number of cases, however, information was not available on what "broken" meant.

D. Office of Compliance Activities

The Office of Compliance staff has investigated several firms whose full-size cribs were involved in incidents associated with crib slat/spindle disengagement (TAB D). As a result of the investigations, five firms conducted corrective action plans since 1991, either offering consumers a replacement side rail or a retro-fit kit. The Childcraft corrective action was conducted in 1991. Okla Homer Smith, Welsh Juvenile Products, Cosco,[3] and Nelson Juvenile Products corrective actions were conducted in 1995 and 1996. Copies of the press releases announcing the recalls or the point of purchase posters are included in TAB D.

In view of these corrective action plans, the Office of Compliance sent a letter to manufacturers and importers of cribs on November 15, 1995, requesting JPMA certification test reports, copies of dealer and warranty claims, and reports of injuries involving cribs that were currently sold by each firm (TAB D). The firms provided the requested information, and in December 1995, industry and JPMA representatives met with CPSC Compliance and Engineering staff. At this meeting, Compliance staff requested JPMA to develop, by January 30, 1996, a method for firms to examine existing inventory of cribs, cribs in the marketplace, and future production of cribs to ensure the structural integrity of crib slats. This method was never provided by JPMA.

A February 8, 1996, letter from CPSC Compliance staff to JPMA for distribution to crib manufacturers requested current production and quality control data (TAB D). Twenty-one manufacturers/importers responded to the questionnaire and an additional nine provided production information in previous establishment inspections. Manufacturers producing over 100,000 cribs from January 1993 through December 1995 (nine companies) all reported that they perform some type of quality assurance testing. The responses revealed a wide variation in procedures for in-house quality assurance tests, although the responses were not sufficiently detailed to illustrate just how these tests were conducted. A number of distributors of imported cribs performed no quality assurance tests of their own and relied on the foreign manufacturer to perform tests.

E. Laboratory Testing and Draft Performance Requirements

The mandatory CPSC crib standards contain no tests to address crib slat structural integrity. Staff believes that the current ASTM test method for crib side panels (50 drops of a 25 pound weight from a height of 3 inches) is inadequate in that cribs produced in conformance with these provisions have failed in actual use. Based on limited test data from CPSC's Engineering Laboratory, staff has proposed to increase the stringency of the test, suggesting that the weight be increased to 50 pounds, the number of drops be increased to

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[3]In addition to the 138 cases of crib slat disengagement found in CPSC's data files, Cosco indicated that they had received reports of 230 incidents, and that some of these incidents involved minor injuries. These reports are now available to CPSC staff, and will be evaluated to determine the extent to which the Cosco and CPSC incident reports overlap.

1,000, and the drop height remain the same.[4] This test would be preceded and followed by a torque test of each slat similar to that in Schedule V of the Canadian crib standard (Cribs and Cradles Regulations, SOR/86-962).

In developing these recommendations, the CPSC Engineering Laboratory (LSEL) performed testing on eight crib samples of varying slat construction (two were mortised[5] and pinned, two were pinned dowels, and four were glued dowels). All cribs met the ASTM F1169 performance standard. However, when the impact weight was doubled from 25 to 50 pounds (keeping the drop height at 3 inches), several failures occurred within a range of 27 - 539 cycles (failures occurred at 27, 110, 127, and 539 cycles). All of the failed samples used glue to fasten the slats. One of these (S-869-8549) was a recalled sample.

A torque test was also applied to crib slats based in part on the requirements of the Canadian standard. This test determines whether the slat spacing will remain in conformance with the maximum width specified in CPSC's mandatory crib standards after a force is applied. Testing revealed that crib slats which were mortised as well as pinned could withstand the torque test before and after impact testing. The slats of most samples with either pinned dowels or glued dowels rotated during the torque test. One of the glued samples with rectangular slats violated the CPSC crib slat spacing requirements after torque testing. Based on these test results, LSEL staff believes that performance tests with increased ability to predict crib slat failures are needed.

LSEL staff recommends that impact testing should be performed for 1,000 cycles using a 22.7 kg (50 lb) impact weight dropped from a height of 76 mm (3 in). A separation of any slat from the side rail greater than 25 percent of the length of the portion embedded in the side rail would constitute a failure. This is to ensure that enough material remains in the side rail to prevent an end of a slat from being entirely disengaged from one or both of the crib rails. The impact test would be performed on both drop and stationary crib sides mounted in a test frame.

Torque testing would involve the application of a 6.8 N.m (5 lbf-in.) torque to each crib slat; the spacing cannot exceed that required by CFR 1600 1508.4 (a). The test would be performed on both drop and stationary crib side slats.

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[4]The 50 pound weight, 3-inch drop, was chosen to represent the weight of a 95th percentile 30-month-old child (35 pounds) and to allow for a margin of safety for impact distances greater than 3 inches, heavier children (including siblings), and other factors. The proposal for 1,000 drop cycles was based on test results indicating that glued crib slats failed at 539 cycles or less, and the observation that crib slats that were constructed differently (and were judged to be more structurally sound) remained intact after 1,000 cycles (in one case, after 5,000 cycles). A requirement for 1,000 cycles provides some margin of safety over and above the highest observed failure, given the small number of samples tested.

[5]A mortised construction has a rectangular slot or hole cut into the top/bottom rail to hold the slat.

The results of CPSC laboratory testing, as well as draft performance requirements to address crib slat disengagement, are included at TAB E.

III. OPTIONS

Options for Commission action to address crib slat disengagement hazards are described below:

1. Initiate a rulemaking proceeding to develop mandatory performance requirements addressing the hazards posed by crib slat disengagement on full-size and certain (non-mesh) non-full-size cribs by publishing an Advance Notice of Proposed Rulemaking (ANPR) under the authority of the Federal Hazardous Substances Act (FHSA). Currently, CPSC's crib regulations (16 CFR Parts 1508 and 1509) do not require any performance test to ensure the structural integrity of crib side panels and slats. New requirements could be based on an enhancement of the ASTM F1169 side panel test and addition of a torque test.

2. Direct the staff to continue to work with ASTM to enhance the stringency of the F1169 crib standard. CPSC staff believes that the current test for crib side panels is inadequate. In October 1995, staff initially requested that the voluntary standard be strengthened, and in September 1996, proposed specific test methods for inclusion in the standard. The ASTM subcommittee is currently conducting laboratory evaluation of the CPSC staff proposal, and the subcommittee chairman has indicated that he will strive to schedule a meeting to discuss this issue in January 1997.

3. Direct the staff to pursue recalls of hazardous cribs on a case-by-case basis using its authority from section 15 of the FHSA. Since 1991, five firms have been involved in corrective actions related to crib slat disengagement.

4. Take no further action to address crib slat disengagement hazards at this time.

IV. CONCLUSIONS AND RECOMMENDATIONS

The ASTM subcommittee on cribs, after more than a year of staff requests to strengthen the standard, has failed to take action to address the crib slat hazard. Because the industry has failed to act, the staff has had to take the lead by conducting the testing and proposing a test method for a revised standard. Although the industry claims that the hazard exists because of poor quality assurance, it is apparent from a number of recalls involving several manufacturers that this is not an isolated problem. The staff believes it has provided sufficient time for the ASTM subcommittee to address this hazard. Therefore, the staff recommends that the Commission issue the draft ANPR (TAB F) to begin the rulemaking process.

TAB A

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: JUN 13 1996

TO : John Preston, ES

Through: Mary Ann Danello, Ph.D., Associate Executive Director M. Danello
Directorate for Epidemiology and Health Sciences
Robert E. Frye, Director, EHHA

FROM : Suzanne P. Cassidy, EHHA

SUBJECT: Incident Data on Crib Slat Disengagements

This is in response to your request for incident data on crib slat disengagements.

Since January 1, 1985, 133 incidents have been reported to the Commission that may have been associated with clib slat disengagements.[1] This number includes 12 fatal incidents, 5 cases where injuries were reported and 116 reports where no injuries or deaths were involved. Of the 133 incidents, 10 reports have been received since January 1, 1996. None of the 1996 cases involved injuries or deaths. Summaries of the fatal incidents, as well as all incidents that have been reported in 1996, are attached.

Information was obtained by reviewing narrative comments in the Commission's In-Depth Investigation (INDP), Injury and Potential Injury Incident (IPII), Death Certificate (DTHS) and National Electronic Injury Surveillance System (NEISS) data bases. In addition, hard copies of reports were examined when possible to determine whether crib slat disengagements appeared to be involved in the incidents. Reports where it was stated that crib slats were disengaged, loose, missing, or broken[2] were included, but cases were not counted where it appeared that the incident resulted from poor maintenance (including missing or improper hardware), mis-use, or very old "antique" cribs. Thus, caution should be used in interpreting these numbers since available information did not always permit a conclusion as to whether the incident occurred because of lack of structural integrity or was caused by other reasons. This is particularly true for many of the older incidents.

Attachments (2)

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[1]This is not a complete count because all such incidents are not reported to the Commission, and data collection is still in progress for some sources.

[2]In many of the reports, it was merely reported that the slats were broken. Information is not available on what was meant by the word "broken."

REPORTED FATALITIES ASSOCIATED WITH CRIB SLAT DISENGAGEMENT	Received January 1, 1985 to June 6, 1996	12 deaths

No	Doc No.	Date	Mfr	Age/Sex	Crib Age	Summary of Incident
1	870422DAL4077	04/02/87	[redacted]	4 mo. M	8+ yrs.	Slid lower body through 2 detached slats and head lodged against slats. Used crib that had been given to family by neighbor. Had been exposed to rain and cold. Slats over 4" apart.
2	890807CCC2365	09/18/88	[redacted]	6 mo. M	5+ yrs.	Head and neck lodged between slats of crib. One slat where he was caught had just been repaired with glue. Crib purchased in "disrepair" at garage sale.
3	81114CCC2050	09/24/88	[redacted]	5 mo. M	unk	Died of asphyxiation when he crawled backward through space in crib side due to missing slat that had broken out day before incident.
4	900312HCC2178	12/12/88	[redacted]	11mo.M	unk	Died of asphyxiation when his head was caught between broken crib side and wall. Slats were missing from the sides and had been broken off by other children.
5	900523HCC3552	04/20/89	[redacted]	6 mo. F	unk	Strangled in 55" cord used to hold crib together. Side railing did not have any vertical slats.
6	910611HCC2205	09/20/89	[redacted]	6 mo. M	unk	Died of asphyxiation when he slipped through gap in crib created by 3 missing side rail components that had been broken out previous year by another child.
7	900123HCN0844	01/06/90	[redacted]	3 mo. F	10+ yrs.	Died after being trapped in opening caused by one or two slats that detached from side rail. Purchased at garage sale.

No	Doc No.	Date	Mfr	Age/Sex	Crib Age	Summary of Incident
8	910118HCC2075	10/10/90	[redacted]	12 mo F	unk	Found hanging by neck when head was caught in opening caused by missing slat. Crib purchased used in 1989.
9	940818HCC2202	07/12/93	[redacted]	9 mo F	unk	Slipped through 7" space caused by missing side rail slats. and suffocated due to entrapment between crib mattress and railing.
10	931013CWE4006	09/28/93	[redacted]	11 moM	4 mo.	Died of asphyxiation when trapped between loose slats and mattress. Crib was purchased new for use in a shelter; victim's mother had noticed loose slats when she received crib in Aug.
11	950525HCC2100	10/23/93	[redacted]	28 mo.F	8+ yrs.	Died when entrapped between loose vertical slats. Slats on other side had separated from top rail earlier but had been repaired.
12	950815HCC4109	11/25/94	[redacted]	6 mo F	unk	Died when slipped through 5" gap caused by missing slat. Parent was aware that crib was broken.

REPORTED CRIB SLAT DISENGAGEMENT INCIDENTS	Received January 1, 1996 through June 5, 1996	10 Incidents: No Injuries or Deaths

No	Doc No.	Date	Mfr	Age/Sex	Crib Age	Summary of Incident
1	960523CCC5189	04/19/96	[redacted]	206 M	5 yrs.	2 slats detached from rail and 5 were loose. No injury
2	960201CNE5053	01/20/96	[redacted]	217 M	unk	Slats fell out when dropside released. No injury.
3	960206CAA3388	01/13/96	[redacted]	217 F	unk	Slats fell out after mother raised siderail to top position. No injury
4	960603CCC5216	04/23/96	[redacted]	212 U	15 m	Child broke 2 slats off footboard; 10-12 other loose slats. No injury
5	H9640073A	04/01/96	[redacted]	213 F	unk	When dropside fell down several spindles detached. No injury
6	G9630115A	01/01/96	[redacted]	unk	unk	Slats have become loose on full-size crib. No injury.
7	H9640047A	03/31/96	[redacted]	unk	unk	A slat was found broken on floor next to crib, No injury.
8	N9630012A	01/01/96	[redacted]	unk	unk	Top rail and spindles fell off drop side of crib. No injury.
9	H9630223A	08/05/95	[redacted]	unk	unk	Decorative slats are loose. No injury.
10	G9620093A	12/01/95	[redacted]	unk	unk	Slats loosened from rail during use. No injury.

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: SEP 19 1996

TO : John Preston, ES

Through: Mary Ann Danello, Ph.D., Associate Executive Director M. Danello
Directorate for Epidemiology and Health Sciences
Robert E. Frye, Director, EHHA

FROM : Suzanne P. Cassidy, EHHA spc

SUBJECT: Data Update on Crib Slat Disengagements - Incidents Reported since June 13, 1996 Memo.

This is in response to your request for an update on crib slat disengagement incidents reported since our original memorandum dated June 13, 1996.

Five additional incidents appearing to involve slat disengement have been reported since the June memorandum. A list of these additional incidents is attached. None were fatalities, and from available information it appears that there were no actual injuries. Incidents were limited strictly to slat (or spindle) disengagement and did not include rail malfunctions which may have resulted from hardware problems.

With the additional cases included, the total number of disengagement incidents reported since 1985 is now 138. Of the total number reported, 12 incidents were fatal, 5 cases involved injuries, and no injuries were reported in 121 incidents.

Attachment

CRIB SLAT DISENGAGEMENT INCIDENTS REPORTED

SINCE JUNE 13, 1996, MEMO

No	Doc No.	Date	Mfr	Age/Sex	Crib Age	Summary of Incident
1	H9660013A	6/01/96	[redacted]	216 F	14 yrs	All slats on one rail detached, as well as bottom corner of rail
2	960521HWE4014	5/21/96	[redacted]	Unk	Unk	Slats in crib are falling out. (IDI not complete at this time)
3	C9680038A	5/00/96	[redacted]	206 M	New	All spindles fell out when drop side was raised
4	H9660080A	5/00/96	[redacted]	215 F	1.5 yrs	Wooden horizontal bar detached exposing vertical slats of headboard. No glue residue or evidence slats were secured.
5	960816CAA5525	12/00/94	[redacted]	218 F	1 yr.	Child leaned on one slat and five slats detached.

TAB B

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: November 12, 1996

TO : Deborah Tinsworth, Project Manager, Crib Slats

Through: Warren J. Prunella, AED, EC WJP

FROM : Anthony C. Homan, EC ACH

SUBJECT: Infant Cribs

Attached is a report providing background information on the market for infant cribs. Some highlights of the market include:

* estimated sales of about 2.2 million units annually
* estimated retail sales of up to $350 million annually
* up to 47 million units available for use and about 10 million units in use at any given time
* at least 20 firms manufacture or import infant cribs

Attachment(s)

THE MARKET FOR INFANT CRIBS

Anthony C. Homan
Directorate for Economics
October 1996

INTRODUCTION

The Commission is considering amendments to the Federal Hazardous Substances Act (FHSA) regulations to modify the testing requirements for full size, and certain non full size infant cribs. The memo only gives information on full size cribs. The requirements could be changed to incorporate new test methods for crib slat integrity. The crib slats are the vertical rails on the side of the crib. Full size infant cribs are intended to be used by infants and children for sleeping and resting. The CPSC Division of Human Factors reports that cribs are used by infants and children of up to 30 months of age. This report provides background information on the market for full size infant cribs.

SHIPMENTS AND SALES OF CRIBS

Although there are no available data on unit sales of full size infant cribs for household use, an estimate can be made by multiplying the percentage of new parents who reported that they purchased or received as a gift a new crib by the number of live births. In 1984, according to the National Center for Health Statistics there were 3.70 million live births. In 1995, there were 3.89 million live births. The *American Baby* Baby Products Tracking Study showed that 54 percent of all cribs in use were new in 1984.[1] By 1993, *American Baby* reported that the percentage rose to 57 percent. If we assume no change in this percentage from 1993 to 1995, then based on live births, crib sales were an estimated 2.15 million units in 1995. Attachment I shows annual crib sales for 1984 through 1995.[2]

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[1] *1984 Baby Products Tracking Study*, American Baby Inc. New York.

[2] The methodology assumed 97 percent of all new mothers of infants use a crib. While in past years the *American Baby* Baby Products Tracking Study estimated that between 93 and 97 percent of new mothers used cribs, the 1993 tracking study estimated that only 85 percent of new mothers used a crib. This estimate seems unrealistically low given past estimates, so we continued to use 97 percent as the upper end of the range. If the actual number of new mothers using a crib was 85 percent beginning in 1993, then sales would have ranged from about 1.94 million units in 1993 to about 1.88 million units in 1995.

Neither shipment data or retail dollar sales of new full size infant cribs are readily available.[3] However, a leading juvenile products industry trade publication[4] reported that the average expenditure for a crib or cradle in 1993, the most recent year available was about $160. If we assume no change in price or consumer preference from 1993 to 1995, estimated 1995 unit sales of cribs and cradles at retail might have amounted to about $350 million.

CRIBS IN USE

The CPSC Product Population Model (PPM) was used to estimate the number of full size infant cribs available for use. The PPM is a computer model that estimates the number of units in use based on the product's expected useful life and on historical sales data. Full size infant cribs available for use at the end of 1995 were calculated using estimates of sales from 1956 to 1995 and assumed an expected useful product life ranging from 10 to 25 years.[5] Based on this methodology, the number of cribs available for use at the end of 1995 would have ranged from about 22 million to 47 million. This figure includes cribs in storage and in the homes of other caregivers, such as grandparents. Thus, the estimate includes cribs unlikely to be in use.

An alternate measure of the number of cribs in use is the number in actual use, as opposed to available for use. The number of cribs in actual household use is approximated by the resident population under 30 months of age because on average, children use cribs for up to 30 months. At the end of 1995 there would have been up to 9.9 million units based on resident

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[3] Wood and metal cribs are included under Standard Industrial Classification (SIC) codes 2511 and 2514, respectively. The value of shipments is reported every five years for wood cribs, but not for metal cribs. In 1992, the value of shipments for wood cribs was $111.8 million. However, since the percentage of shipments that are metal as opposed to wood is not known, the value of shipments of all cribs is not known.

[4] *Small World*, August 1995.

[5] A range for the expected useful life of 10 to 25 years is based on past Commission estimates. Past estimates were based on anecdotal information supplied by industry and trade sources.

population.[6] The number of cribs in household use ranged from about 8.5 million to 9.9 million from 1980 to 1995 based on resident population.

Number of Firms

Based on the 1995 and 1996 Small World Directories, there are at least 20 firms that manufacture or import cribs.[7] According to trade sources, the Small World listing usually accounts for at least 95 percent of the market.

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[6] If only 85 percent of new mothers used cribs in recent year (see page 1), then the number of cribs in household use for those years would have been less. For example, in 1995 there would have been about 8.39 million in use.

[7] The 1996 *Small World* Directory lists 20 firms manufacturing or importing cribs. The 20 firms represent a decrease from the 39 firms listed in the 1995 *Small World* directory. An editor for the magazine could not explain the difference in the number of firms found in the two directories. However, it is known that some of the firms listed in the 1995 directory, but not in the 1996 directory, are still manufacturing cribs.

ATTACHMENT I
Live Births and Estimated Sales

YEAR	LIVE BIRTHS (millions)	ESTIMATED UNIT SALES[1] [2] (millions)
1956	4.21	2.04
1957	4.30	2.09
1958	4.25	2.06
1959	4.24	2.06
1960	4.26	2.07
1961	4.27	2.07
1962	4.17	2.02
1963	4.10	1.99
1964	4.03	1.95
1965	3.76	1.82
1966	3.61	1.75
1967	3.52	1.71
1968	3.50	1.70
1969	3.60	1.75
1970	3.73	1.95
1971	3.56	1.86
1972	3.26	1.71
1973	3.14	1.64
1974	3.16	1.65
1975	3.14	1.65
1976	3.17	1.66
1977	3.33	1.74
1978	3.33	1.75
1979	3.49	1.83
1980	3.61	1.89
1981	3.63	1.90
1982	3.68	1.93
1983	3.64	1.91
1984	3.70	1.92
1985	3.76	1.98
1986	3.76	1.99
1987	3.81	2.03
1988	3.91	2.10
1989	4.02	2.17
1990	4.18	2.27
1991	4.12	2.25
1992	4.08	2.24
1993	4.00	2.21
1994	3.95	2.19
1995	3.89	2.15

Source: National Center for Health Statistics

1. Assumes 97 percent of infants use cribs
2. Based on data showing that 54 percent of new mothers used a newly purchased crib in 1984 and 57 percent in 1993, we linearly interpolated the annual percentages of purchased new cribs for the intervening years. We also assumed 50 percent for 1956-1979, 54 percent for 1970-1984, and 57 percent for 1994 and 1995.

TAB C

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

October 20, 1995

Mr. William S. Suvak, P.E.
Chairman, Crib Section of
ASTM Subcommittee F15.18
V.P. Engineering/Operations
Child Craft
501 E. Market Street
Salem, IN 47167

Dear Bill:

It has come to the attention of CPSC staff that several cribs, certified by the Juvenile Products Manufacturers Association (JPMA) as being in conformance with the ASTM F1169, Standard Consumer Safety Performance Specification for Full-Size Cribs, have had slats or spindles in the side panels disengage during use. Two such cribs were recalled in February and March, 1995 (copies of press releases are enclosed). One of these cribs was implicated in the 1993 death of a child in the crib. Other brands of cribs, also certified as being in conformance with the ASTM F1169 standard, are under investigation for similar slat failure problems.

The ASTM F1169 standard was drafted in response to a CPSC staff request to address incidents in which cribs failed structurally during use. Recent studies have determined that many structural failures of cribs are caused by cribs being used beyond their expected lifetime. However, since the cribs involved in the two cited recalls were not "old," in terms of the expected life of a crib, it appears that either the F1169 standard or the JPMA certification program is not adequate to address such failures.

The Canadian regulations for cribs and cradles contain a test for slat strength at Schedule V. This test (copy enclosed) requires slats or spindles in a standard or portable crib to withstand a torque of 8 N.m (71 lbf-in) without damage, turning or disengagement. No such test or requirement is in the ASTM F1169 standard.

CPSC staff requests that the agenda for the upcoming meeting of the Crib Section of the ASTM Juvenile Products Subcommittee on October 26th, 1995, include a discussion of crib slat strength.

The staff further requests that at this meeting the Subcommittee consider including the Canadian requirements for crib slat strength in the ASTM F1169 standard.

This request has not been discussed with or approved by the Commission. Should you require further information, please call me at 301-504-0494, ext. 1315.

Sincerely,

John D. Preston, P.E.
Directorate for Engineering Sciences

Enclosures

cc: Robert Waller, Chairman,
ASTM F15.18 Subcommittee for
Cibs, Toddler Beds and Play Yards

NEWS from CPSC

U.S. CONSUMER PRODUCT SAFETY COMMISSION

OFFICE OF INFORMATION AND PUBLIC AFFAIRS WASHINGTON, D.C. 20207

FOR IMMEDIATE RELEASE
February 10, 1995
Release # 95-076

CONTACT: Elaine Tyrrell
(301) 504-0580 Ext. 1191

CPSC, OKLA HOMER SMITH FURNITURE ANNOUNCE CRIB SIDE RAIL RECALL

WASHINGTON, D.C. - In cooperation with the U.S. Consumer Product Safety Commission (CPSC), Okla Homer Smith Furniture Manufacturing Company of Fort Smith, Ark., is recalling and replacing drop side rails that have missing or loose slats on certain models of its cribs. A child's head can get caught in the loose or missing slats, presenting an entrapment hazard.

In September 1993, a child died in an Okla Homer Smith crib with a missing slat that was used in a homeless shelter. The company has received additional complaints of loose or missing slats, a few of which have resulted in minor injuries (scratches and bruises) to children.

The following models of cribs manufactured between April 1992 and December 1993 may have missing or loose side rail slats: 30562, 80005, 80007, 80010, 80012, 80023, 80029, 80035, 80038, 80054, 80056, 80057, 80068, 80090.

About 278,000 cribs, sold nationwide at mass merchandise and juvenile specialty stores for about $100 are subject to this recall.

Consumers should check the bottom of the crib headboard below the mattress for the model number and manufacture date. Owners of cribs with the above models should check the drop side rail slats to make sure the slats are secure. If the rail slats are missing or feel loose, consumers should contact the company to arrange for a free drop side rail replacement or retrofit kit.

DO NOT USE A CRIB WITH MISSING SLATS. Consumers owning cribs subject to this recall are urged to call the company for a free retrofit kit to make sure the slats remain secure.

For more information, consumers should contact Okla Homer Smith Furniture Manufacturing Company at **(800) 261-3440** or write Okla Homer Smith Furniture Manufacturing Company, P.O. Box 1148, 416 South Fifth Street, Fort Smith, AR 72901.

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NEWS from CPSC

U.S. CONSUMER PRODUCT SAFETY COMMISSION

OFFICE OF INFORMATION AND PUBLIC AFFAIRS WASHINGTON, D.C. 20207

FOR IMMEDIATE RELEASE
March 1, 1995
Release # 95-088

CONTACT: Ken Giles
(301) 504-0580 Ext. 1184

CPSC, WELSH JUVENILE PRODUCTS ANNOUNCE CRIB SIDE RAIL RECALL

Washington, DC -- In cooperation with the U.S. Consumer Product Safety Commission (CPSC), Welsh Juvenile Products of St. Louis, Mo., is recalling and replacing between 5,000 and 7,000 crib side rails that have missing or loose spindles. A child's head can get caught in the loose spindles or the space left by missing spindles, presenting an entrapment hazard.

In February 1995, the Empire State Consumers Association of Rochester, N.Y., notified CPSC about a defective crib. CPSC is also aware of an incident involving a one-month-old child in Virginia whose head was caught in a 6-inch space that was created by missing spindles. The child suffered no injuries.

This recall affects Jenny Lind crib model 6982 with lot numbers 8021, 8024, 8025, 8052, 8053, 8055, 8056, and 8070 and model 6983 with lot numbers 8022, 8023, 8026, 8027, 8031, 8032. Consumers should check the crib headboard for the model number and lot number.

The cribs were sold for about $100 between July 1994 and January 1995 at Kmart stores only in Maryland, Virginia, Pennsylvania, West Virginia, New Jersey, Maine, New Hampshire, New York, Vermont, Massachusetts, Connecticut, Tennessee, Oklahoma, New Mexico, Colorado Louisiana, Mississippi, Kansas, Wyoming, Utah, South Dakota, Arkansas, Montana, North Carolina, North Dakota, Nebraska, Rhode Island, and Texas.

Consumers who own the Jenny Lind crib models listed above should stop using the cribs immediately and contact Welsh Juvenile Products at (800) 648-4505 or write to Welsh Juvenile Products, 1535 S. 8th Street, St. Louis, MO 63104 for a replacement rail. Consumers can also return the cribs to the nearest Kmart for a full refund.

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SCHEDULE V

(Section 18)

TEST FOR SLAT STRENGTH

1. The method to be used for testing the strength of a slat of a standard crib or portable crib is as follows:

(*a*) assemble the crib according to the manufacturer's recommended instructions;

(*b*) secure the crib to a horizontal surface in a manner that does not impede the test;

(*c*) apply a torque of 8 N.m (newton metres) and maintain the force for 10 seconds on one of the slats;

(*d*) note any damage, turning or disengaging of the slat;

(*e*) repeat (*c*) and (*d*) with all other slats;

(*f*) apply a vertical upward force of 500 N and maintain the force for 30 seconds at the middle of the top rail on one of the sides of the crib with slats;

(*g*) note any damage or disengagement of any of the slats from the top rail; and

(*h*) repeat (*f*) and (*g*) on the remaining sides that have slats.

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

November 8, 1995

Mr. William S. Suvak, P.E.
Chairman, Crib Section of
ASTM Subcommittee F15.18
V.P. Engineering/Operations
Child Craft
501 E. Market Street
Salem, IN 47167

Dear Bill:

Chairman Brown has asked me to contact you and urge you to schedule a meeting of the Crib Section of the ASTM F15.18 Subcommittee at the earliest opportunity to discuss the request in my October 20, 1995 letter. That letter requested a discussion at an October 26, 1995 meeting of the Crib Section on the possible addition of a Canadian test for slat strength to the ASTM F1169 Standard Consumer Safety Specification for Full-Size Cribs. At the 10/26/95 meeting, members were asked to perform the Canadian crib slat strength test on their products and be prepared for a discussion of the CPSC staff request at the next meeting in March, 1996.

The ASTM Walker Section will be requested to hold an interim meeting at the CPSC Headquarters in Bethesda Maryland at 9:00 a.m. on December 12, 1995. Since there are several manufacturers who produce both walkers and cribs, I would like to suggest a meeting of the Crib Section on the same day at 1:00 p.m.

Sincerely,

John D. Preston

John D. Preston, P.E.
Directorate for Engineering Sciences

cc: Robert Waller, Chairman,
ASTM F15.18 Subcommittee for
Cribs, Toddler Beds and Play Yards

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

July 10, 1996

Mr. William S. Suvak, P.E.
Chairman, Crib Section of
ASTM Subcommittee F15.18
V.P. Engineering/Operations
Child Craft
501 E. Market Street
Salem, IN 47167

Dear Bill:

My letter of October 20, 1995 (copy enclosed), drew to your attention that cribs from several manufacturers that were certified as meeting the requirements of the ASTM F1169 crib standard had, nevertheless, experienced disengagement of slats in the side panels during use. Cribs from three manufacturers were the subject of 1995 recalls due to slat disengagement. A search of incident data over the period January 1, 1985 through June 5, 1996 revealed 133 incidents in which it was reported that slats either disengaged or broke during use. Twelve of these incidents resulted in a fatality.

At a January 30, 1996 meeting of the Crib Section of ASTM Subcommittee F15.18 manufacturers rejected my suggestion to add a Canadian slat strength test to the ASTM F1169 standard to address slat disengagement incidents. Manufacturers were unanimous in expressing their belief that adding the Canadian slat strength test would not remedy the slat disengagement problem since it appeared that the problem was related to a lack of an effective quality assurance program. Manufacturers stated that improving quality assurance procedures during production was the appropriate means to address this problem.

At a May 29, 1996 meeting of the Crib Section there was additional discussion regarding incidents involving slats disengaging from crib side panels. Manufacturers present at the meeting expressed the opinion that no changes to the current ASTM F1169 standard were necessary to address these incidents based on an observation that they were confined to a relatively small number of manufacturers. Subsequent to this meeting, the CPSC Engineering Laboratory conducted some tests of side panels from two new cribs using the procedures in Section 6 (Crib Side Testing) of the current ASTM F1169 standard. One of the side panels tested was a retail store display model and had defective glue joints at all the slat/rail connections as evidenced by the

fact that the slats could be turned by hand prior to testing. Most of the slats in this side panel were also secured by pins which enabled it to conform to the requirements of the drop side cyclic and static tests. However, it was my understanding that crib manufacturers had stated at a previous meeting of the ASTM Crib Section that pins alone would not be sufficient to assure that slats in a side panel would not disengage during use. Therefore, CPSC staff continues to be concerned that the current tests for the structural integrity of crib side panels are not adequate to insure that slats will not disengage during use.

CPSC staff is aware of two foreign standards for cribs (Canadian and Swedish) that appear to have test requirements that are specific for evaluating the integrity of slats in crib side panels. The staff of the CPSC Engineering Laboratory is currently assessing the effectiveness of these and possibly other tests that may be appropriate to address the hazard of crib slat disengagement incidents.

Chairman Brown has expressed concern that the ASTM Crib Section has not initiated any action to address this problem.

At the September meeting of the ASTM Crib Section I will present results of our laboratory testing for slat integrity in crib side rails. Depending on the results of these tests, the staff may make a specific proposal at that meeting for an amendment to the ASTM F1169 standard to address this problem. I am hopeful there will be a positive response to the staff's requests that action be taken to rectify this problem.

Sincerely,

John D. Preston
Directorate for Engineering Sciences

Enclosure

CRIB SLAT DISENGAGEMENT INCIDENTS - 1/1/90 TO 12/31/95

No.	IDI/Complaint	Date	Mfr ID	Age/Sex Victim	Age of Crib	Summary of Incident
1.	N9020050A	01/00/90	C	na/na		New side rails, installed 8 months ago, have slats that are separating and consumer had to use rope to keep crib together. No injury.
2.	910117CWE5023	01/05/90	E	8 mo/M	2 months	Child trapped by neck in space between slats which had separated from top rail. Contusions/abrasions.
3.	900123HCN0844	01/06/90	K	3 mo/F	10 years	Child found dead after becoming trapped in opening caused by one or two slats becoming detached from top side rail. Crib was purchased at garage sale.
4.	900523CCC1455	03/01/90	G	na/na	8 months	When complainant lifted drop side, 10 slats fell out. No injury.
5.	910916CCC3764	09/01/90	R	18 mo/F	17 months	Corner joints for drop side separated allowing slats to detach. No injury.
6.	H9090072A	09/26/90	C	na/na		Several slats detached from crib while side was lifted. Use of humidifier may have loosened glue. No injury.
7.	910118HCC2075	10/10/90	B	1 yr/M	See summary	Child found hanging by neck from opening caused by missing slat. Asphyxiated. Crib purchased used in June 1989.
8.	F90A0097A	11/08/90	P	22 mo/F		Child kicked out a slat in crib side and got head stuck in space. Treated/Rel.
9.	910219CWE7024	12/26/90	L	na/na	13 months	Crib rail came loose and same thing happened with two replacement parts. No injury

10.	910219CCN0687	02/01/91	C	10 mo/F	20 months	Side rail of crib fell apart and child was found hanging over the edge. No injury.
11.	910415CCN1004	04/12/91	K	na/na	2 years	When owner attempted to raise drop side, top and bottom rails separated from slats of two year old crib. No injury.
12.	910917CNE5258	08/13/91	T	16 mo/F		Side rail fell when child used it to pull to standing position. Slats fell out. No injury.
13.	910823HWE7075	08/22/91	L	10 mo/F	17 months	Crib floor collapsed after spindles detached from top rail of footboard. No injury.
14.	H9240159A	05/01/92	F	na/na		Spindles were loose on crib's side rails and replacement parts were cracked. No injury
15.	H92B0038A	11/20/92	AA	na/na	2 years	Slats became unglued on full-size crib. No injury
16.	930216CCC1223	01/10/93	U	23 mo/F	12 months	Slats became unglued and fell into mattress area. No injury.
17.	N9320047A	02/07/93	GG	na/na	8 months	When consumer pulled on rail of crib it fell apart. No injury.
18.	H9330127A	03/18/93	S	na/na		Most crib slats detached during use. No injury.
19.	930616HWE7006	06/07/93	V	8 mo/M	12 months	Child found standing in crib in which a headboard slat had fallen out. No injury.
20.	H9390018A	09/14/93	S	na/na	21 months	Wooden slats detached. No injury.
21.	931013CWE4006	09/28/93	B	11 mo/M	4 months	Child became trapped between crib's loose side rail slats and mattress. Asphyxia.

22.	950525HCC2100	10/23/93	?	2 yr/F	8 years	Child became entrapped between loosened vertical slats. Asphyxia. Crib was used by two other children.
23.	H93A0091A	10/26/93	Y	na/na	3½ years	Slat detached when not in use. No injury.
24.	940329CCN1089	11/02/93	O	14 mo/M	1 year	Top rail of one of sides of 2-year old crib became detached allowing side slats to fall out. No injury.
25.	C93B0005A	11/15/93	Z	na/na	5 years	All the slats fell out when consumer put side rail down. No injury.
26.	931228CCN0528	12/05/93	S	15 mo/F	See Summary	Child either shook or pulled up on top side rail causing it to separate from almost all the spindles. No injury. Crib was purchased used in 1988.
27.	H9590238A	00/00/94	AA	12 mo/M		Three slats in side rail detached when child leaned against them. No injury.
28.	G9410125A	01/19/94	B	na/na	5 months	Some of the slats fell out. No injury.
29.	H9490130A	02/00/94	N	na/na	8 months	Two slats in headboard detached. No injury.
30.	H9410030A	02/14/94	S	na/na		Slats loosened during assembly. No injury.
31.	H9430013A	02/22/94	C	na/na	8 years	One of the slats fell off. No injury.
32.	H9430073A	03/09/94	B	na/na	4 months	11 of 18 wood slats in one of the rails detached. No injury.
33.	940323CCN1045	03/30/94	S	10 mo/M	12 months	Child was able to remove small part from crib and slats have become loose. No injury.

34.	940606HCC2142	06/03/94	O	11 mo/M	14 months	Child died after getting his head through the rail of his crib. Strangulation.
35.	H9460285A	06/29/94	B	8 mo/M	11 months	Child got his arms and legs caught in slats that detached from his crib. No injury.
36.	940727CNE5173	07/20/94	L	na/na	6 months	Consumer noted that drop side slats were loose. Crib was returned to retailer. No injury.
37.	941216CCC1160	09/00/94	BB	na/na		Slats detached from side of crib/toddler bed. No injury.
38.	940928CCC3886	09/11/94	O	15 mo/M	3 years	Father pushed on crib to move it & slats detached into father's hands or fell on floor. No injury.
39.	941216CCC1160	09/15/94	W	na/na	22 months	Consumer noticed one wooden slat partially detached from top of side rail when attempting to use in toddler bed configuration. No injury.
40.	941123CWE6002	10/01/94	O	na/na	10 months	Crib, less than year old, began to sway. When consumer pulled up on side rail, it came off and slats fell out. No injury.
41.	H94C0064A	11/23/94	DD	na/na	4 months	All the slats in the side of a full-size crib fell out. No injury.
42.	H94B0343A	11/30/94	CC	na/na	12 months	Slats of wood crib detached during use alowing child to get out. No injury.
43.	H9510017A	12/24/94	EE	na/na	18 months	Slats on full-size crib became unglued during use. No injury.
44.	950217CAA1373	01/01/95	F	1 mo/M	3 months	On second day of use, child was found with head about half on mattress and half outside crib after some slats fell out. No injury.

45.	C9510005A	01/09/95	F	na/na		All the spindles loosened and detached when the side rail was pulled up. No injury.
46.	H9510259A	01/15/95	R	na/na	11 months	When lowered, slats detached from side rail. No injury.
47.	950410CAA1575	02/00/95	FF	13 mo/F		Child fell from crib when slats fell out. No injury.
48.	950410CAA1575	02/01/95	X	13 mo/F	11 months	Child was able to climb out of crib when slats in side rail separated from bottom rail leaving a one foot wide opening. No injury.
49.	950303CBB1425	02/14/95	S	15 mo/F	16 months	As mother pulled up on drop side, approximately eight slats detached from top or bottom side rails. No injury.
50.	950303CCC2423	02/15/95	G	18 mo/F		Child became trapped in gap between side rail and mattress support caused by slats disconnecting from lower horizontal rail. No injury.
51.	950320CCC1500	02/16/95	S	2 yr/F	2½ years	Eight slats on one side rail detached creating 25" wide space. No injury.
52.	950317CCC1482	03/00/95	F	na/na		Slats fell out when rail was lifted. No injury.
53.	950303CCN1382	03/01/95	S	11 mo/M	14 months	Child found holding two slats from drop side in his hand. Other slats had also detached from top side rail and "fanned out." No injury.
54.	950327CCC3519	03/23/95	S	15 mo/F	16 months	Several side rail slats of 16-month old crib detached from top horizontal member. Problem appears to be improperly driven nails. No injury.

55.	950328CAA1525	03/23/95	S	12 mo/F	35 months	Fifteen wooden spindles separated from upper rail of drop side of three-year old crib. No injury.
56.	950428CAA1617	03/28/95	S	17 mo/F	17 months	Slat in end of crib was found loose at top and pulled into crib by child breaking the wood at the bottom. No injury.
57.	950412CNE5315	04/05/95	?	9 mo/M	4 years	Child was able to remove slat from headboard creating 4 inch space. Slat was held in place by a spring. No injury.
58.	950629CAA1816	05/22/95	Y	16 mo/F	15 months	Consumer noticed several slats were detached from bottom of the stabilizer bar of crib. Crib was repaired by family friend. No injury.
59.	950627CCC1812	06/08/95	S	8 mo/F	8 months	Child found wedged between mattress and bumper pad. All spindles in drop side had separated from upper rail.
60.	950810CCC3899	07/25/95	S	10 mo/F	1½ Years	Child's head became stuck in opening caused when two slats popped out from their slots as child was trying to pull herself up. No injury.
61.	N95B0025A	10/00/95	F	na/na		Slats fell out of side rail when man was pulling it up. No injury
62.	951027CCC1134	10/12/95	S	8 mo/M	10 months	Child was being placed in crib when drop side rail detached. No injury.

CHRONOLOGY OF CRIB SLAT ACTIVITIES

March 28, 1995	Subcommittee meeting. First discussion on crib slat disengagement.
October 20, 1995	Letter sent to ASTM crib subcommittee chairman requesting discussion on slat separations at upcoming meeting. Letter requests consideration of Canadian torque test.
October 26, 1995	Subcommittee meeting. JPMA Certification committee will review slat separation issue. Staff suggested addition of Canadian torque test to crib standard. Manufacturers were requested to perform this test and discuss results at next meeting.
November 8, 1995	Letter sent to ASTM crib subcommittee chairman requesting an interim meeting in December 1995. Chairman responded by scheduling a meeting on 1/30/96.
January 30, 1996	Subcommittee meeting. Table summarizing 63 crib slat separation incidents was distributed by CPSC staff. Table did not report age of cribs involved. Manufacturers reported that Canadian torque test would not always detect unsatisfactory glue joints. Manufacturers believed that slat problem may be confined to manufacturers who may not be testing frequently enough during the manufacturing process.
February 8, 1996	Letter from compliance staff with questionnaire requesting production data and quality control procedures sent to JPMA for distribution to 48 juvenile furniture manufacturers. Eighteen of the 48 manufacturers do not make rigid sided cribs, 21 responded to the letter and nine had provided information in previous establishment inspections. Responses to question regarding in-house quality assurance tests revealed a wide variation in procedures. Manufacturers producing over 100,000 cribs during the period 1/93 through 12/95 (nine companies) all perform some type quality assurance testing on cribs sampled from production. Responses were not sufficiently detailed to illustrate just how these tests are conducted.
March 12, 1996	Subcommittee meeting. CPSC staff distributed a table of slat disengagement incidents with age of crib identified. Most incidents involved relatively new cribs. Manufacturers stated they were addressing slat disengagement by evaluating their manufacturing and quality control procedures..
May 29, 1996	Subcommittee meeting. A manufacturer noted that the CPSC table of slat failure incidents involved only a few manufacturers. The subcommittee recommended that CPSC concentrate its efforts on individual manufacturers who have experienced slat failures.

July 10, 1996 — Letter sent to ASTM crib subcommittee expressing concern that tests for integrity of crib side panels in current standard are not adequate. Letter stated that results of additional tests by CPSC engineering laboratory would be presented at an October meeting together with a proposal for an amendment of the current ASTM standard.

September 26, 1996 — Subcommittee meeting. A table showing the CPSC laboratory test results was distributed (see attached). Staff reported that the current test for crib side panels (50 drops of a 25 lb weight from height of 3 inches) was not believed to be adequate. Based on the CPSC laboratory test data, the staff proposed to increase the stringency of the test and suggested that the weight be increased to 50 lb, the number of drops be increased to 1,000 and the drop height remain the same. This test would be preceded and followed by a torque test of each slat per the Canadian crib standard. After much discussion, crib manufacturers were asked to perform tests in accordance with the CPSC proposal and be prepared to discuss the proposal at the next meeting which was scheduled for the period February 24-26, 1997.

October 8, 1996 — Staff called ASTM crib subcommittee chairman and requested an interim meeting. Chairman responded that he will strive to schedule a meeting in January 1997.

jdp cribcrn2.doc 10/11/96

TAB D

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: October 17, 1996

TO : Debbie Tinsworth, Project Manager
Division of Hazard Analysis

Through: David Schmeltzer, Associate Executive Director
Office of Compliance

Marc Schoem, Director
Division of Corrective Actions

FROM : Carol Cave, Compliance Officer
Division of Corrective Actions

SUBJECT: CRIB SLAT DISENGAGEMENT

The staff of the Office of Compliance investigated several firms whose full-size cribs have been involved in numerous incidents involving crib slat/spindle disengagement. As a result of the Compliance investigations, five firms, Okla Homer Smith, Welsh Juvenile Products, Cosco, Nelson Juvenile Products, and Childcraft, have conducted corrective action plans since 1991, either offering consumers a replacement side rail or a retro-fit kit. The Childcraft recall was conducted in 1991. The other four recalls were conducted in 1995 and 1996. A copy of the press releases announcing the recalls or the recall notices are attached. Cosco reported approximately 230 incidents, where the spindles separated from the side rails, some of which involved minor injuries.

In view of these recalls, on November 15, 1995, the Office of Compliance sent a letter to manufacturers and importers of cribs asking about quality control procedures. We requested JPMA certification reports, copies of dealer and warranty claims, and reports of injury involving cribs that were currently sold by the firm.

The firms provided the requested information and, in December, 1995, industry and JPMA representatives met with Compliance and Engineering staff. The Office of Compliance asked JPMA to develop by January 30, 1996, a method for firms to examine existing inventory of cribs, cribs in the marketplace, and future production to ensure crib slats are not loose and are secure. This method was never provided by JPMA.

As a follow-up to the December, 1995, industry meeting with CPSC, crib manufacturers met at ASTM in January, 1996. Crib

manufacturers present at the meeting were united in the belief that crib slat detachment incidents should be addressed by better quality control procedures during production. They did not believe that adding a torque test for slat strength to the ASTM F1169 full-size crib standard would solve the problem.

In February, 1996, the Office of Compliance sent a letter, through JPMA, to 48 manufacturers of juvenile furniture to determine their current quality control programs, test procedures and crib production. (A copy of the letter is attached). Through the letter, Compliance learned 18 manufacturers/importers currently do not manufacture cribs, 21 manufacturers/importers responded to the questionnaire, and nine firms had previously provided production information in earlier establishment inspections.

The engineering staff reviewed the quality control procedures submitted by the firms. The analysis revealed a wide variation in procedures. Generally, manufacturers producing over 100,000 cribs during the period January 1993 through December 1995 (nine companies) perform some type of quality assurance testing on cribs sampled from production. Responses were not sufficiently detailed to illustrate just how these tests were conducted. A number of distributors of imported cribs perform no quality assurance tests of their own and rely on the foreign manufacturer to perform tests. For crib manufacturers who produce less than 100,000 cribs, there were not enough incidents to warrant action on the part of Compliance staff.

NEWS from CPSC
U. S. CONSUMER PRODUCT SAFETY COMMISSION

FOR RELEASE: THURSDAY, AUGUST 22, 1991

RELEASE #91-114

CHILDCRAFT CRIBS

WITH LOOSE SLATS RECALLED

Washington, D.C. - The Smith Cabinet Mfg. Co., Inc., Salem, IN, in cooperation with the U.S. Consumer Product Safety Commission (CPSC), is voluntarily recalling 1,735 Childcraft cribs model nos. 15811, 15821, 15961 and 15991 if they have loose or missing side slats. These cribs were imported from Italy and sold nationwide from a limited number of retail stores after September 1988.

The CPSC learned of this problem because of consumer complaints about loose or missing side slats received by its Chicago office. To date the company has received 22 such complaints. No injuries have been reported.

Consumers are urged to check the bottom of the crib headboard for the model number. If they have one of the above models, they should check the side slats to make sure that they feel secure. If the side slats feel loose or are missing, the consumers may return the crib side rails to their place of purchase for a free replacement side rail. Loose or missing side rails may present an entrapment or escape hazard.

--MORE--

5401 Westbard Avenue
Bethesda, MD 20207

Call
(301)492-6580

Office of
Information and
Public Affairs

For more information, consumers may call the manufacturer toll free at 1-800-827-4937 (Dept. M) or write to the Smith Cabinet Mfg. Co., 501 E. Market Street, P.O. Box 444, Salem, IN 47167-0444.

The U.S. Consumer Product Safety Commission is the Federal agency responsible for consumer product safety. Some 15,000 different types of consumer products fall within the Commission's jurisdiction.

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NOTE: To report an unsafe consumer product or a product-related injury, consumers may call the U.S. Consumer Product Safety Commission's toll-free hotline at 1-800-638-2727. A teletypewriter for the hearing impaired is available at 1-800-638-8270; the Maryland TTY number is 1-800-492-8104.

NEWS from CPSC

U.S. CONSUMER PRODUCT SAFETY COMMISSION

OFFICE OF INFORMATION AND PUBLIC AFFAIRS WASHINGTON, D.C. 20207

FOR IMMEDIATE RELEASE
1995
Release # 96

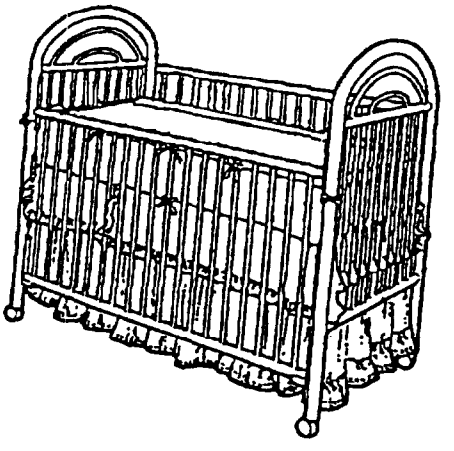
CONTACT:
(301) 504-0580 Ext.

CPSC AND COSCO INC. ANNOUNCE CRIB RECALL

WASHINGTON, D.C. - In cooperation with the U.S. Consumer Product Safety Commission (CPSC), Cosco Inc. of Columbus, Ind., is announcing a recall to repair approximately 190,000 full-size cribs. The spindles in the side rails of the crib can loosen and separate from the side rail. This separation could allow the child to fall from the crib or create a gap which creates a potential entrapment hazard. Cosco is aware of approximately 230 incidents, where the spindles separated from the side rails, some of which involved minor injuries.

The cribs are made of welded red, white, blue or multicolored tubular metal. The crib has both a fixed side rail and a drop side rail which can be lowered or fully raised and locked into place. The majority of the cribs were sold nationwide between January 1991 and April 1994 at leading retail stores and juvenile furniture stores, including Sears, J.C. Penny and Toys R Us, for about $95 to $150. The unassembled cribs were packaged in a box labeled in part, "COSCO."

COSCO
Model T14



The recall program involves crib models 10T01, 10T04, 10T05, 10T06, 10T09, 10T11, and 10T14. The manufacturer's identification, which includes the model number, is located at the bottom of the horizontal rail of either the drop side or fixed side rail of the

---MORE---

crib. Cribs with a manufacture date code between 4490 (44th week of 1990) and 4093 (40th week of 1993) are included in this recall.

Consumers who own the recalled cribs should stop using them and contact Cosco at (800) 314-9327 for a free repair kit.

The U.S. Consumer Product Safety Commission protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. To report a dangerous product or a product-related injury and for information on CPSC's fax-on-demand service, call CPSC's hotline at (800) 638-2772 or CPSC's teletypewriter at (800) 638-8270. To order a press release through fax-on-demand, call (301) 504-0051 from the handset of your fax machine and enter the release number. Consumers can obtain this release and recall information via Internet gopher services at cpsc.gov or report product hazards to info@cpsc.gov.

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NEWS from CPSC

U.S. CONSUMER PRODUCT SAFETY COMMISSION
OFFICE OF INFORMATION AND PUBLIC AFFAIRS WASHINGTON, D.C. 20207

FOR IMMEDIATE RELEASE
February 10, 1995
Release # 95-076

CONTACT: Elaine Tyrrell
(301) 504-0580 Ext. 1191

CPSC, OKLA HOMER SMITH FURNITURE ANNOUNCE CRIB SIDE RAIL RECALL

WASHINGTON, D.C. - In cooperation with the U.S. Consumer Product Safety Commission (CPSC), Okla Homer Smith Furniture Manufacturing Company of Fort Smith, Ark., is recalling and replacing drop side rails that have missing or loose slats on certain models of its cribs. A child's head can get caught in the loose or missing slats, presenting an entrapment hazard.

In September 1993, a child died in an Okla Homer Smith crib with a missing slat that was used in a homeless shelter. The company has received additional complaints of loose or missing slats, a few of which have resulted in minor injuries (scratches and bruises) to children.

The following models of cribs manufactured between April 1992 and December 1993 may have missing or loose side rail slats: 30562, 80005, 80007, 80010, 80012, 80023, 80029, 80035, 80038, 80054, 80056, 80057, 80068, 80090.

About 278,000 cribs, sold nationwide at mass merchandise and juvenile specialty stores for about $100 are subject to this recall.

Consumers should check the bottom of the crib headboard below the mattress for the model number and manufacture date. Owners of cribs with the above models should check the drop side rail slats to make sure the slats are secure. If the rail slats are missing or feel loose, consumers should contact the company to arrange for a free drop side rail replacement or retrofit kit.

DO NOT USE A CRIB WITH MISSING SLATS. Consumers owning cribs subject to this recall are urged to call the company for a free retrofit kit to make sure the slats remain secure.

For more information, consumers should contact Okla Homer Smith Furniture Manufacturing Company at (800) 261-3440 or write Okla Homer Smith Furniture Manufacturing Company, P.O. Box 1148, 416 South Fifth Street, Fort Smith, AR 72901.

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NEWS from CPSC

U.S. CONSUMER PRODUCT SAFETY COMMISSION

OFFICE OF INFORMATION AND PUBLIC AFFAIRS WASHINGTON, D.C. 20207

FOR IMMEDIATE RELEASE
March 1, 1995
Release # 95-088

CONTACT: Ken Giles
(301) 504-0580 Ext. 1184

CPSC, WELSH JUVENILE PRODUCTS ANNOUNCE CRIB SIDE RAIL RECALL

Washington, DC -- In cooperation with the U.S. Consumer Product Safety Commission (CPSC), Welsh Juvenile Products of St. Louis, Mo., is recalling and replacing between 5,000 and 7,000 crib side rails that have missing or loose spindles. A child's head can get caught in the loose spindles or the space left by missing spindles, presenting an entrapment hazard.

In February 1995, the Empire State Consumers Association of Rochester, N.Y., notified CPSC about a defective crib. CPSC is also aware of an incident involving a one-month-old child in Virginia whose head was caught in a 6-inch space that was created by missing spindles. The child suffered no injuries.

This recall affects Jenny Lind crib model 6982 with lot numbers 8021, 8024, 8025, 8052, 8053, 8055, 8056, and 8070 and model 6983 with lot numbers 8022, 8023, 8026, 8027, 8031, 8032. Consumers should check the crib headboard for the model number and lot number.

The cribs were sold for about $100 between July 1994 and January 1995 at Kmart stores only in Maryland, Virginia, Pennsylvania, West Virginia, New Jersey, Maine, New Hampshire, New York, Vermont, Massachusetts, Connecticut, Tennessee, Oklahoma, New Mexico, Colorado Louisiana, Mississippi, Kansas, Wyoming, Utah, South Dakota, Arkansas, Montana, North Carolina, North Dakota, Nebraska, Rhode Island, and Texas.

Consumers who own the Jenny Lind crib models listed above should stop using the cribs immediately and contact Welsh Juvenile Products at (800) 648-4505 or write to Welsh Juvenile Products, 1535 S. 8th Street, St. Louis, MO 63104 for a replacement rail. Consumers can also return the cribs to the nearest Kmart for a full refund.

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U.S. CONSUMER PRODUCT SAFETY COMMISSION

WASHINGTON, D.C. 20207

November 15, 1995

BY FAX/CERTIFIED

Dear Manufacturer/Importer:

The Office of Compliance in the U.S. Consumer Product Safety Commission (Commission) is responsible for the investigation of potentially defective products and enforcement of the Consumer Product Safety Act (CPSA), 15 U.S. C. 2051 et seq. and the applicable regulations at 16 C.F.R. Part 1115 et seq. for consumer products manufactured, distributed or imported in the United States.

The staff is currently investigating reports involving cribs with missing or loose spindles or slats that have separated from the side rail or headboard. We are very concerned about this problem. The staff is aware of more than 200 incidents of crib spindle/slat failure which resulted in separation that could lead to infant entrapment. In addition, the staff has worked cooperatively with two manufacturers/importers on voluntary recalls to correct this problem for cribs distributed to consumers. The staff is also working with a number of other manufacturers/importers on similar crib problems and expects to announce additional recalls in the near future.

Please attend a meeting on December 12, 1995 at 11:00 a.m. with Office of Compliance staff to discuss ways to prevent future injuries and deaths from occurring as a result of crib spindle/slat problems. The meeting will take place at the Commission's Bethesda, Maryland headquarters offices located at 4330 East West Highway, Bethesda, Maryland. Please confirm your planned attendance at this meeting with either Marc Schoem on (301) 504-0608, ext. 1365 or Carol Cave on (301) 504-0608, ext. 1338.

To further assist the staff in its investigation of this entrapment hazard please provide the following information prior to the meeting:

1. A list of all models of cribs from 1990 to the present that are imported and/or manufactured by your firm. Include all model numbers and a catalog or brochure depicting each. Include the total number of cribs manufactured and distributed by model.

2. A listing of retailers who have sold the cribs detailed in number 1 above.

3. Test reports which indicate the cribs met JPMA certification, or any other reports of testing conducted on each crib distributed by the firm.

4. Copies of all safety related consumer or dealer complaints, warranty claims, reports of injury, court complaints and copies of documents related to such complaints, claims, and injuries involving the cribs currently and previously sold by the firm.

This letter is being sent to all known manufacturers and importers of wooden and metal cribs. If your firm is not an importer of manufacturer, please provide the name(s) of your supplier(s), or your association with the crib industry, if any.

Please provide a written response to this letter on or before December 6, 1995. If you have any questions or need assistance in responding to this letter, please contact either Carol Cave or Marc Schoem (see numbers above)8. Please send your response to the attention of Marc Schoem, Director, Division of Corrective Actions, U.S. Consumer Product Safety Commission, 4330 East West Highway, Bethesda, Maryland 20814-4408. We appreciate your cooperation on behalf of product safety.

Sincerely,

David Schmeltzer
Assistant Executive Director
Office of Compliance

Enclosures - Press Releases

cc: William McMillan
Juvenile Products Manufacturers Association
236 Route 38 West
Moorestown, NJ 08057

FILE COPY

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

February 8, 1996

Mr. William L. MacMillan
Chairman
Juvenile Products Manufacturers Association, Inc.
236 Route 38 West, Suite 100
Moorestown, New Jersey 08057

Re: REQUEST FOR QUALITY CONTROL PLANS

Dear Mr. MacMillan:

Thank you for your letter dated February 5, 1996. To further assist the staff in its investigation of spindle/slat separation we are requesting manufacturers and importers of cribs to provide a quality control plan for their manufacturing process. Attached is a letter to manufacturers and importers that outlines the material we are requesting. We would like a response to these questions within 10 days of each company's receipt of this letter.

Please distribute this to the companies identified in your February 5, 1996 letter. If you are unable to distribute the letter, please advise us and we will send it to each firm. Should you have any questions please do not hesitate to call me on (301) 504-0606 ext. 1365 or Carol Cave on ext. 1338. Thank you in advance for your cooperation.

Sincerely,

Marc Schoem
Director
Division of Corrective Actions

cc: Rick Locker
Counsel to JPMA

U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

February 8, 1996

Re: SPINDLE/SLAT SEPARATION ON CRIBS

Dear Manufacturer/Importer:

The Office of Compliance in the U.S. Consumer Product Safety Commission (Commission) is continuing to investigate reports involving cribs with spindles or slats that have separated from the side rail or headboard. After meeting with several firms on January 30, 1996 at the ASTM meeting the staff is requesting additional information involving the current quality control procedures of each firm manufacturing or importing cribs.

To further assist the staff in its investigation of this entrapment hazard please provide the following information within ten days of your receipt of this letter.

1. Identify the total number of cribs manufactured or imported, by model number per year for the last 3 years (1993-1995).

2. Include a catalog/pamphlet depicting each crib.

3. How often are tests conducted by the manufacturer to determine if a glue joint with or without a pin or weld is not secure? Is the Canadian Torque test currently being used within your manufacturing process? If so, how often?

4. When cribs are sampled for in-house testing a) how many of each lot are tested and b) how many are in a lot?

5. Please provide a detailed explanation of the your manufacturing process from point-of-supplier to finished product on the shelves at a retailer.

6. Define shipping procedures and any specific packing used to avoid shipping damage.

7. What type of wood is used in the cribs and how is each type of wood affected by a) moisture, or b) storage and c) how often are each checked for warpage?

8. Are side rails assembled by machine or hand? If done by

machine have you noticed an increase in the quality, less complaints from consumers or an increase in demand, for replacement side rails.

9. How are complaint files documented? Are they computerized so you can sort to identify a poorly manufactured crib?

10. Provide a copy of your current quality control procedures used for ensuring quality and conformance to the applicable standards.

This letter is being sent to all known manufacturers and importers of wooden and metal cribs. If your firm is not an importer or manufacturer, please provide the name(s) of your supplier(s), or your association with the crib industry, if any.

If you need any assistance please contact either Carol Cave (301)504-0608 ext. 1338 or me on ext 1365. Please send your response to the attention of Carol Cave, Compliance Officer, Division of Corrective Actions, U.S. Consumer Product Safety Commission, 4330 East-West Highway, Bethesda, Maryland 20814-4408. Thank you in advance for your cooperation.

Sincerely,

Marc Schoem
Director
Division of Corrective Actions

TAB E

United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

DATE: October 31, 1996

TO : Deborah Tinsworth, Division of Hazard Analysis,
Directorate for Epidemioloty and Health Science (EHHA)

Through: Andrew G. Ulsamer, Ph.D. AGU
Associate Executive Director
Directorate for Laboratory Sciences

FROM : Robert L. Hundemer RLH
Division of Engineering Laboratory (LSEL)
(301-413-0180)

SUBJECT: Crib slat test

Background:

The CPSC full-size and non-full-size crib regulations at 16 CFR Parts 1508 and 1509 contain no tests addressing the structural integrity of cribs. The regulations have requirements for dimensions, spacing of crib components (slat spacing no greater than 2-3/8 inches), hardware, construction and finishing, assembly instructions and entrapment in cutouts.

An ASTM Standard Specification for Full Size Baby Crib (ASTM F1169-88) contains a number of requirements addressing the structural integrity of full-size cribs including a dynamic test to evaluate the security of slats or spindles in crib side panels. This test requires that an 11.3 kg (25 lb) weight be dropped 50 times onto the center of the bottom rail of a crib drop side from a height of 76 mm (3 in.) while the drop side is suspended from each end of the upper rail. This is followed by a static load test in which a 45.4 kg (100 lb) weight is gradually applied to the center of the lower rail while the drop side is suspended at the center of the top rail. A crib stationary side is tested in a similar manner while in its assembled state (attached to the crib end panels).

In spite of these standards there have been sixty-two reported incidents of crib slat failures from 1/1/90 to 12/31/95. Additionally, there have been twelve fatalities associated with these failures from 1/1/95 to 6/6/96 (Tab A).

Canada and Sweden also have crib regulations with requirements addressing structural integrity. The Canadian regulation (Cribs and Cradles Regulations, SOR/86-962) contains a slat strength test (at Schedule V) requiring each slat in the crib's side panels to withstand a torque of 8 Newton-meters (N.m) (5.9 lbf-in.). This test was designed to account for the eventual drying and decaying of the glue used in crib construction.

The Swedish crib standard, SS 83 96 41, also has a dynamic test addressing the structural integrity of the entire crib. In this test a horizontal reciprocating force of 100 Newtons (22.5 lbf) is applied longitudinally and transversely to the crib at a rate of 1 cycle per second. At the end of 100, 1000, 2000, 5000, and 10,000 cycles the crib is examined for breakage of any components.

Staff is also aware of two manufacturers who have their own in-house tests for crib slat integrity. The first manufacturer uses the same procedure described in ASTM F1169 but uses a weight of 13.6 kg (30 lb) instead of 11.3 kg (25 lb) and a drop height of 127 mm (5 in) instead of 76 mm (3 in).

The second manufacturer also uses the same procedure as described by ASTM F1169 but drops the 11.3 kg (25 lb) 150 times instead of 25 times. This manufacturer has a requirement that limits the separation of slats from the crib side rails to no more than 1 mm (0.04 in) after completion of the impact test.

Task:

Develop test criteria to address crib slat failures, and compare test results to the current ASTM F1169-88 test method for predicting crib slat failure.

Test Samples:

Eight crib samples were tested as part of this evaluation. These samples represented current and past products. Three of these samples were involved in CPSC crib recalls. Four samples 96-896-7611, 96-896-7615, 96-896-7616, and S-869-8549 are from two manufacturers and had slats which were secured only by glue. The other four samples, 96-800-2979, 96-490-0737, T-800-3869 and T-793-0339 are from four additional manufacturers and had slats which were secured by either pins or glue and pins (see attached Table 1).

Two of the samples having pinned slats had top and bottom side rails with mortised (rectangular) holes to accept the ends of rectangular slats. The other two pinned samples had slats with round dowel ends which are inserted into drilled holes in the top and bottom rails. Both types used metal pins which were

inserted through the sides of the crib rails and penetrate the slat ends. Crib sides with pinned slats typically have the two end pairs of slats pinned to the top and bottom side rails. Sometimes they also have the middle two or three slats pinned. Other slats are either not pinned, alternatively pinned top and bottom, or pinned only to the top or bottom rail.

The cribs with slats secured only by glue all had slats with round dowel ends which were inserted into holes in the top and bottom rails. It is presumed that all the slats were glued.

Test Method:

An impact test similar to that in the ASTM F1169-88 standard was performed. Differences were the use of a 12.7 mm (0.5 in) thick impact pad with a type A durometer hardness of 20 instead of a 9.53 mm (0.375 in) pad, an increase in the mass of the drop weight to 18.1 and 22.6 kg (40 and 50 lb) and an increase in the number of drops (up to 5000). Also both the stationary sides and drop sides were tested in the test frame.

The crib side was mounted on a test frame in a manner which supported the top rail within 50.8 mm (2 in) of each end. A bracket was designed to straddle the bottom rail and allow weights of 11.3, 18.1 or 22.7 kg (25, 40, or 50 lbs) to be suspended below the bottom rail. The bracket and weight were lifted via a cable attached to a pneumatic actuator. A drop height of 76.2 mm (3 in) was used and the weight was dropped in free-fall causing the bracket to impact onto the 12.7 mm (0.5 in.) pad, located at the center of the bottom rail, once every 4 seconds.

In addition, torque tests were conducted on selected crib slats using a torque of 6.8 N.m (5 lbf-in.) before and after impact testing. This test is designed to measure the integrity of the slat/side rail bond and identify slats which, if they rotated, would violate the slat spacing requirement of 16 CFR 1508.

Test Results:

The results of the crib side testing are shown in Table 1. The table is organized so that samples with pinned sides are presented first followed by samples with glued sides.

Impact test results:

No sample separated as a result of the ASTM test method. Samples with pinned sides remained intact throughout impact testing. Four drop sides and three stationary sides were subjected to between 500 and 5,000 impacts each with a 22.7 kg (50 lb) weight with no adverse effects.

One drop side and three stationary sides using glued construction separated when impacted by a 22.7 kg (50 lb) weight. One of these was a sample (S-869-8549) involved in a previous CPSC recall because of slat separation. One sample separated after *27 cycles*, two sides of one sample separated after fewer than 130 cycles, and one sample separated after 539 cycles.

Torque test results:

Samples with pinned and mortised crib slats did not rotate when torque tested. The other pinned samples with round-ended crib slats rotated when torque tested. Three of the four glued samples had slats which rotated when torque tested. One sample with glued rectangular crib slats having doweled ends violated the CPSC crib slat spacing requirement after torque testing.

Discussion/Conclusions:

A 22.7 kg (50 lb) impact weight and a 76 mm (3 in) drop height were chosen to account for the weight of a 95th percentile, 30 month old child (ref. Tab B); and for a margin of safety that could include impact distances of more than 76 mm (3 in), heavier children or siblings, or other forces. The number of impact cycles was selected based on the range of crib failures (27-539 cycles) and the useful life of cribs of 10 to 25 years (Tab B).

All of the cribs tested to the impact test procedure in ASTM F1169-88 were able to meet that performance requirement, even when the number of cycles was increased two-fold to ten-fold. Increasing the impact test weight to 22.7 (50 lb) and adding to the number of impact cycles did not affect any crib side using pinned construction and one side using glued only construction. However, four sides using glued only construction separated as a result of testing in a range of between 27 and 539 impact cycles. Some crib sides remained intact after 5,000 impact cycles.

A torque test was applied to crib slats based in part on the requirements of the Canadian Standard. This test revealed that cribs with slats which were mortised as well as pinned could withstand the torque test before and after impact testing and not rotate. Most samples with either round, pinned dowel ends (not mortised), or round, glued dowel ends failed the torque test. One sample with rectangular crib slats having round dowel ends, violated the CPSC crib slat spacing requirement after torque testing.

Since failure continues to occur with samples that meet the current ASTM standard, a test with an increased ability to predict failure is needed (see recommendations below).

Recommendations:

Impact testing: Should be performed for 1000 cycles using a 22.7 kg (50 lb) impact weight dropped from a height of 76 mm (3 in). A separation of any slat from the side rail greater than 25 percent of the length of the portion embedded in the side rail would constitute a failure. This is to ensure that enough material remains in the side rail to prevent an end of a slat from being entirely disengaged from one or both of the crib rails. Slat disengagement has resulted in fatal entrapment incidents. The impact test would be performed on both drop and stationary crib sides mounted in a test frame.

Torque testing: The test would apply a 6.8 N.m (5 lbf-in.) torque to each crib slat; the spacing cannot exceed that required by CFR 1600 1508.4 (a). The test would be performed on slats in both drop and stationary crib sides.

Attachment

CRIB TEST TABLE 1

SAMPLE # Construction	SIDE TESTED	TEST WEIGHT	CYCLES	TORQUE 5 lbf-ft	RESULT of Impact
96-800-2979 Pinned and glued sides mortised.	STATIONARY*	25 LBS	500	NOT DONE	INTACT
		50 LBS	500	AFTER IMPACT TESTING NO SLATS ROTATED	INTACT
	DROP*	50 LBS	5000		INTACT
T-800-3860 Pinned sides mortised.	DROP*	25 LBS	50	NO SLATS ROTATED BEFORE AND AFTER IMPACT TESTING	INTACT
		50 LBS	1000		INTACT
96-490-0737 Pinned sides with dowels.	STATIONARY*	NOT DONE	NOT DONE	**SLATS ROTATED**	NOT DONE
	DROP*	25 LBS	1000	NOT DONE	INTACT
		40 LBS	600		INTACT
T-793-0339 Pinned sides with dowels.	STATIONARY*	25 LBS	50	**BEFORE TESTING 2 SLATS ROTATED. AFTER TESTING NO ADDITIONAL SLATS ROTATED. BEFORE TESTING 4 SLATS ROTATED. AFTER TESTING 1 ADDITIONAL SLAT ROTATED.**	INTACT
		50 LBS	1000		INTACT
	DROP*	25 LBS	25		INTACT
		50 LBS	1000		INTACT

*Drop heights are from 3 inches.

CRIB TEST TABLE 1 (con't)

SAMPLE # Construction	SIDE TESTED	TEST WEIGHT	CYCLES	TORQUE 5 lbf-ft	RESULT of Impact
S-869-8549 Glued only sides with dowels.	STATIONARY*	25 LBS	50	**BEFORE TESTING ONLY 3 SLATS DID NOT ROTATE.**	INTACT
		50 LBS	127		**SEPARATED AT 127 CYCLES**
	DROP*	25 LBS	25	**BEFORE TESTING ONLY 4 SLATS DID NOT ROTATE.**	INTACT
		50 LBS	110		**SEPARATED AT 110 CYCLES**
96-896-7611 Glued sides with dowels.	STATIONARY*	50 LBS	27	**BEFORE IMPACT TESTS ALL SLATS ROTATED EASLY**	**SEPARATED**
	DROP*	25 LBS	1000	NOT DONE	INTACT
		50 LBS	500		INTACT
96-896-7615 Glued sides with dowels.	STATIONARY*	25 LBS	50	NO ROTATION	INTACT
		50 LBS	539	NOT DONE	**SEPARATED**
96-896-7616 Glued sides with dowels.	STATIONARY*	50 LBS	2000	**5 SLATS ROTATED AFTER IMPACT TEST** *VIOLATES CPSC SLAT SPACING*	INTACT

*Drop heights are from 3 inches.

TAB F

DRAFT 11/19/96 Billing Code 6355-01

CONSUMER PRODUCT SAFETY COMMISSION

16 CFR Parts 1508 and 1509

AMENDMENTS TO REQUIREMENTS FOR FULL-SIZE AND NON-FULL-SIZE BABY CRIBS: REQUEST FOR COMMENTS AND INFORMATION

AGENCY: Consumer Product Safety Commission.

ACTION: Advance Notice of Proposed Rulemaking.

SUMMARY: Based on information currently available, the Commission has reason to believe that unreasonable risks of injury and death may be associated with the slats of certain baby cribs. From 1985 to September 1996, the Commission identified numerous incidents in which crib slats appeared to disengage from the side panels of the crib. When this occurs, children are at risk of becoming entrapped between the remaining slats or falling out of the crib. Twelve incidents resulted in fatalities and five in injuries. Neither existing Commission regulations nor the current voluntary standard adequately addresses these risks of injury and death.

This advance notice of proposed rulemaking ("ANPR") initiates a rulemaking proceeding under the authority of the Federal Hazardous Substances Act ("FHSA"). One result of the proceeding could be the issuance of a rule requiring that crib sides pass a performance standard to assure the structural integrity of crib slats and side panels.

The Commission requests written comments from interested persons concerning the risks of injury and death, the regulatory

alternatives discussed in this notice, and other possible means to address these risks. The Commission invites any interested persons to submit an existing standard or a statement of intent to modify the voluntary standard to address the risks of injury described in this notice.

DATES: Written comments and submissions in response to this notice must be received by the Commission by **[insert date 60 days after publication in the FEDERAL REGISTER]**.

ADDRESSES: Comments should be mailed, preferably in five (5) copies, to the Office of the Secretary, Consumer Product Safety Commission, Washington, D.C. 20207, or delivered to the Office of the Secretary, Consumer Product Safety Commission, Room 502, 4330 East-West Highway, Bethesda, Maryland 20814-4408, telephone (301)504-0800.

FOR FURTHER INFORMATION CONTACT: Deborah K. Tinsworth, Project Manager, Directorate for Epidemiology and Health Sciences, Consumer Product Safety Commission, Washington, D.C. 20207; telephone (301) 504-0470, ext. 1276.

SUPPLEMENTARY INFORMATION:

A. Background

The Consumer Product Safety Commission ("CPSC" or the "Commission") has become aware that the slats[1] on some cribs may disengage from the cribs' side panels and result in injury or death. As explained in this notice, the Commission is beginning

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[1] The term "slats" as used in this notice means both the flat vertical bars on the side of a crib as well as the rounded bars (which are sometimes called "spindles").

a rulemaking proceeding to address this risk.

1. Summary of Existing Requirements

The Commission enforces two baby crib regulations, one applies to full-size cribs, 16 CFR Part 1508, and the other to non-full-size cribs, 16 CFR Part 1509. Both of these regulations contain requirements concerning the spacing of components, such as slats. However, neither regulation includes requirements addressing the structural integrity of slats and side panels. (Other aspects of the existing CPSC crib regulations are discussed in section E of this notice.)

In addition to CPSC's regulations, there is a voluntary standard -- ASTM F1169 Standard Consumer Safety Performance Specification for Full-Size Cribs. And, ASTM is currently developing a standard for non-full-size cribs. The Juvenile Product Manufacturers Association ("JPMA") administers a program to certify that cribs meet the ASTM F1169 standard. The ASTM F1169 voluntary standard requires that crib panels withstand 50 drops of a 25 pound weight from a height of 3 inches. As explained below, the Commission does not believe that this test is adequate.

2. Chronology of Commission Activity

CPSC staff has been working with industry to address the risk of crib slat disengagement since the staff first became aware of the problem. As discussed below, the staff has been active on several fronts. The Commission's Office of Compliance has worked with industry to recall or otherwise correct specific cribs with disengaging slats. Currently, the Commission's

technical staff has been working with ASTM participants to try to address the problem and conducting its own tests to develop an improved standard.

Since 1985, the Commission has recieved reports of 138 incidents in which crib slats disengaged (i.e., were loose, missing, or broken) thereby presenting a risk of injury or death. In addition, as discussed below, one manufacturer had reports of 230 incidents in which slats loosened and separated from the side rail.

In 1991, the Commission's Office of Compliance worked with one company to recall certain models of its cribs that had loose or missing slats. Early in 1995 the Commission staff became aware that two other companies' cribs had slats that disengaged. The staff worked with these manufacturers to recall the cribs in February and March of 1995. Some of these cribs had been involved in minor injuries and one was involved in the death of a child in 1993.

On October 20, 1995, the Commission staff sent a letter to the Chairman of ASTM's subcommittee on cribs expressing concern about this problem and requesting that participants at the subcommittee's October 26 meeting discuss crib slat strength and a torque test that is part of a Canadian crib standard. Under this part of the Canadian standard, discussed in greater detail below, slats must withstand twisting when a specified amount of force is applied. Participants at the subcommittee meeting discussed slat disengagement, and CPSC staff requested manufacturers perform the Canadian torque test and discuss

results at the next subcommittee meeting.

In December 1995, the Commission's Compliance staff worked with another manufacturer to recall a crib with spindles which could loosen and separate from the side rail. The company was aware of 230 incidents in which this had occurred, sometimes with minor injuries. The Commission staff is still evaluating these reports.

At the January 30, 1996 ASTM crib subcommittee meeting, CPSC staff shared information concerning 62 of the slat separation incidents that had been reported to CPSC. (These 62 incidents had occurred between January 1990 and December 31, 1995, and they did not include incidents involving "broken" slats.) Manufacturers reported that the Canadian torque test would not always detect unsatisfactory glue joints. Manufacturers also stated that they believed the problem was not with the ASTM standard but with some manufacturers who were not testing cribs frequently enough during the manufacturing process.

On February 8, 1996, CPSC's Compliance staff sent questionnaires to JPMA for distribution to 48 manufacturers of juvenile furniture concerning the manufacturers' quality control procedures. Twenty-one companies responded to the questionnaire (18 do not currently manufacture cribs and 9 had provided the information previously). Each of the nine largest crib manufacturers (produced over 100,000 cribs between January 1993 and December 1995) performed some quality assurance testing on their cribs. However, the responses to the questionnaire were not sufficiently detailed for the staff to determine how these

tests were conducted.

The ASTM crib subcommittee met again on March 12 and May 29, 1996. Manufacturers at the May ASTM meeting stated that they believed only a few manufacturers were involved in the slat separation incidents and, therefore, there was no need to change the ASTM F1169 standard.

In the summer of 1996, the Commission's Engineering Laboratory staff conducted tests on a variety of cribs, as described below. The staff found that cribs that passed ASTM's side panel test failed when tested under more stringent conditions.

When the ASTM subcommittee met on September 26, 1996, the CPSC staff presented results of its tests and suggested amending the ASTM F1169 standard to (1) require a torque test similar to the Canadian crib standard and (2) strengthen the ASTM test to specify 1,000 drops of a 50 pound weight from a height of 3 inches onto crib side panels.

In November 1996, the Commission's Compliance staff worked with a fifth manufacturer to conduct a corrective action plan for its cribs with disengaging slats. A total of approximately 682,000 cribs were affected by the five corrective actions since 1991 for slat separation.

3. CPSC Staff's Testing

The Commission's Engineering Laboratory staff tested eight crib samples which had rounded or rectangular slats secured by various means (e.g., some slats were glued and some were pinned). None of the samples tested separated when tested in accordance

with the ASTM side panel test (50 drops of a 25-pound weight from a height of 3 inches). However, when the weight dropped onto the side panel was increased from 25 pounds to 50 pounds, all four of the samples with slats secured only by glue did separate. One sample separated after only 27 cycles, two separated after fewer than 130 cycles and one sample separated after 539 cycles. Because a 95th percentile 30-month-old child (the oldest child likely to be in a crib) weighs 35 pounds, the staff chose 50 pounds as a test weight to allow a margin of safety.

The staff also tested these eight cribs in a manner similar to the Canadian torque test but used a lower force. Under the Canadian test, a torque of 8 newton meters (N.m) (approximately 6 pounds feet) is applied to each slat and maintained for 10 seconds. In the CPSC staff's tests a force of 6.78 N.m (5 pounds feet) was applied. During these tests, samples with pinned and mortised crib slats (i.e., rectangular slat ends which fit into rectangular openings in the crib rails) did not rotate when torque tested. However, samples with rounded slats which were pinned did rotate when torque tested, as did samples with round slat ends that were glued.

B. Statutory Authority

This proceeding is conducted under provisions of the Federal Hazardous Substances Act ("FHSA"), 15 U.S.C. 1261 et seq. Cribs with slats that disengage may present a mechanical hazard and would therefore be banned as "hazardous substances" under the FHSA.

A "hazardous substance" includes any toy or other article

intended for use by children which the Commission determines, by regulation, presents an electrical, mechanical, or thermal hazard. 15 U.S.C. 1261(f)(1)(D). An article may present a mechanical hazard if, "in normal use or when subjected to reasonably foreseeable damage or abuse, its design or manufacture presents an unreasonable risk of personal injury or illness (1) from fracture, fragmentation, or disassembly of the article ...." 15 U.S.C. 1261(s). Under the FHSA, a toy, or other article intended for use by children which is or contains a "hazardous substance" susceptible to access by a child is banned. 15 U.S.C. 1261(q)(1)(A).

A proceeding to promulgate a regulation determining that a toy or other children's article presents a mechanical hazard is governed by the requirements set forth in section 3(f) through 3(i) of the FHSA. 15 U.S.C. 1262(e)(1)-(i). First, the Commission must issue an advance notice of proposed rulemaking ("ANPR") as provided in section 3(f). 15 U.S.C. 1262(f). The ANPR must identify the product and the risk of injury; summarize the regulatory alternatives under consideration; describe existing standards and explain why they do not appear to be adequate; invite comments from the public; and request submission of a new or modified standard. Id.

If the Commission decides to continue the rulemaking proceeding after considering responses to the ANPR, the Commission must publish the text of the proposed rule along with a preliminary regulatory analysis in accordance with section 3(h) of the FHSA. 15 U.S.C. 1262(h). If the Commission then wishes

to issue a final rule, it must publish the text of the final rule and a final regulatory analysis that includes the elements stated in section 3(i)(1) of the FHSA. 15 U.S.C. 1262(i)(1). Before the Commission may issue a final regulation, it must make findings concerning voluntary standards, the relationship of the costs and benefits of the rule, and the burden imposed by the regulation. 15 U.S.C. 1262(i)(2).

C. The Product

Both full-size and non-full-size cribs (with non-mesh sides), as defined in 16 CFR Parts 1508 and 1509, are covered by this notice. Cribs are one of the few products that are intended for use when children are unattended. Thus, their safety is essential.

As discussed above, there are both mandatory and voluntary safety standards for cribs. Accordingly, crib safety efforts have generally focused on hazards from older "used" cribs. However, many cribs from which slats have become disengaged were relatively new. Of 62 crib slat disengagement incidents reported to CPSC between January 1, 1990 and December 31, 1995, only 7 cribs were purchased used or were more than 3 years old. (In 14 incidents the age of the crib was unknown.) Moreover, the problem appears to affect a range of manufacturers. Since 1991, five different companies have conducted recalls or other corrective actions for cribs with slats that became disengaged. Twenty-six manufacturers or retailers were involved in the 62 slat disengagement incidents that the Commission's engineering staff brought to the ASTM subcommittee's attention at its January

and March 1996 meetings.

Currently, there are at least 20 manufacturers of cribs. In 1995, about 2.2 million cribs were sold. Assuming a product life of 10 to 25 years, there may be 23 to 48 million cribs available for use. However, based on the population of children who would use cribs (under 30 months of age), only about 10 million cribs would be in use at any given time. According to a leading juvenile product trade publication, the average expenditure for a crib or cradle in 1993 (the most recent year for which such information is available) was about $160.

Over the three year period from 1993 to 1995, the largest eight manufacturers each produced in excess of 200,000 cribs. Six of these eight manufacturers each had three or more crib slat disengagement incidents reported during that period of time. These six are all certified by JPMA as being in conformance with the ASTM F1169 crib standard. All of the eight manufacturers conduct some type of quality assurance tests. However, as discussed above, the Commission does not have sufficient information to evaluate the adequacy of these tests.

D. Risks of Injury and Death

As explained above, this notice concerns the risk of injury and death posed to children when the slats of a crib become disengaged from their side panels. Since January 1, 1985, 138 such incidents have been reported to the Commission. This includes cases in which the slats were disengaged, loose, missing, or broken. It does not include incidents that apparently resulted from poor maintenance (such as missing or

improper hardware), misuse, or very old "antique" cribs.

When slats disengage from the crib side panel, a gap is left between the remaining slats. A child may be able to get his or her body through the space but not his or her head, resulting in entrapment and severe injury or death. Or, if the space is larger, a child could fall out of the crib.

Fortunately most of the reported incidents did not result in injury. In some cases, a parent noticed that slats were loose or detached before any injuries could occur. In some other cases, slats detached when a parent raised or lowered the side rail of the crib. However, twelve of these incidents did result in fatalities and five in injuries. Children who died or were injured generally had gotten their necks trapped in the space left by missing slats.

Although the Commission has worked with crib manufacturers to recall cribs which present this hazard, the problem has continued. Fifteen of the 138 incidents were reported to the Commission since January of 1996.

E. Existing Standards

1. CPSC Regulations

The Commission's regulations for full-size and non-full-size cribs are substantially similar. The full-size crib regulation applies to cribs with interior dimensions of 133 cm long by 71 cm wide (+ or - 1.5 cm). 16 CFR 1508.3(a). The non-full-size crib regulation applies to most other rigid-sided cribs that are either smaller or larger than full-size cribs. 16 CFR 1509.2(b)(1).

All cribs must comply with a requirement for the spacing of components such as slats and spindles. Id. 1508.4, 1508.5, 1509.5 and 1509.6. Both standards also have requirements concerning crib hardware, construction and finishing, and assembly instructions. Id. 1508.7, 1508.8, 1509.7, and 1509.8. The standards also include a requirement and test procedure to prohibit any cutouts that could entrap a child. Id. 1508.11 and 1509.13. They also require cautionary labeling, manufacturer identification, and recordkeeping. Id. 1508.9, 1508.10, 1509.11 and 1509.12.

Nothing in CPSC's current crib regulations requires any performance test to ensure the structural integrity of crib side panels and slats. Provisions do require that slats be spaced no more than 6 cm (2 3/8 inches) apart and that they maintain their spacing when force is applied in accordance with specified testing. Id. 1508.4 and 1509.4. The regulations also contain a general requirement that all wood parts be "free from splits, cracks, or other defects which might lead to structural failure." Id. 1508.7(b) and 1509.8(b). However, these requirements do not specifically address the hazard of slats disengaging from crib side panels.

2. The ASTM F1169 Crib Standard

The ASTM F1169 voluntary standard for full-size cribs contains several safety testing procedures. In addition to crib side testing, the standard includes vertical impact testing, a mattress support system test, a test method for crib side latches, a plastic teething rail test, and requirements for

labeling and instructional literature.

As stated above, JPMA operates a certification program to certify that cribs meet the ASTM F1169 standard. For a manufacturer's cribs to be certified, the manufacturer must test at least 15 percent of models quarterly and the balance once a year in accordance with the F1169 specification.

The crib side test of F1169 includes a cyclic test and a static test. For the cyclic test, a 25-pound weight is dropped onto the side rail 50 times from a 3 inch height. For the static test -- conducted after the cyclic test -- a static load of 100 pounds is applied to the bottom rail of the side panel as the panel is suspended by the top rail. Both the drop side and the stationary side of the crib are tested.

Based on testing conducted by the Commission staff and other available information, the current ASTM F1169 standard does not appear to be adequate. One of the cribs that had been recalled and was involved in the death of a child nevertheless passed the ASTM side panel test when the Commission's engineering lab conducted its tests. Yet, it failed a more stringent test.

F. Regulatory Alternatives Under Consideration

The Commission is considering alternatives to reduce the risks of injury and death related to disengaged crib slats. The primary alternative being considered is amending CPSC's crib regulations to require a test to ensure the structural integrity of crib side panels and their slats. Such a standard could be based on an enhancement of the ASTM F1169 side panel test (e.g., increasing the weight that is dropped onto the crib and the

number of cycles) and addition of a torque test.

Another alternative is for the Commission to take no regulatory action but to pursue recalls of hazardous cribs on a case-by-case basis using its authority from section 15 of the FHSA, 15 U.S.C. 1274. As explained above, there have been five corrective action plans for cribs which had slats that became disengaged. However, since numerous manufacturers appear to be involved, the Commission is concerned that this may be a wide-spread problem that would be better addressed through regulation. As explained above, the Commission is also concerned that the existing crib side testing procedure under ASTM standard F1169 is not adequate.

Finally, the Commission staff could continue to work with the ASTM crib subcommittee to strengthen the F1169 voluntary standard. This option would not require any regulatory action. However, the Commission staff has been working with the ASTM crib subcommittee since October 1995. Although slat disengagement incidents continue to occur, industry has not agreed to make the voluntary standard more stringent.

G. Request for Information and Comments

This ANPR is the first step of a proceeding which could result in amending CPSC's crib standards to require structural integrity tests for crib side panels and their slats. All interested persons are invited to submit to the Commission their comments on any aspect of the alternatives discussed above. Specifically, in accordance with section 3(f) of the FHSA, the Commission requests:

(1) Written comments with respect to the risk of injury identified by the Commission, the regulatory alternatives being considered, and other possible alternatives for addressing the risk.

(2) Any existing standard or portion of a standard which could be issued as a proposed regulation.

(3) A statement of intention to modify or develop a voluntary standard to address the risk of injury discussed in this notice, along with a description of a plan to do so.

All comments and submissions should be addressed to the Office of the Secretary, Consumer Product Safety Commission, Washington, D.C. 20207, and received no later than _____[insert date 60 days from publication].

Dated:_____

_____
Sadye E. Dunn, Secretary
Consumer Product Safety Commission

Reference Documents

The following documents contain information relevant to this rulemaking proceeding and are available for inspection at the Office of the Secretary, Consumer Product Safety Commission, Room 502, 4330 East-West Highway, Bethesda, Maryland 20814-4408:

1. Memorandum from Suzanne P. Cassidy, EHHA, to John Preston, ES, dated June 13, 1996, entitled "Incident Data on Crib Slat Disengagements."

2. Memorandum from Suzanne P. Cassidy, EHHA, to John Preston, ES, dated June 13, 1996, entitled "Data Update on Crib Slat Disengagements -- Incidents Reported Since June 13, 1996."

3. Memorandum from Anthony C. Homan, EC, to Debbie

Tinsworth, Project Manager, dated October 31, 1996, entitled "Infant Cribs".

4. Letter from John Preston, P.E., Directorate for Engineering Sciences, CPSC, to Mr. William S. Suvak, P.E., Chairman, Crib Section of ASTM Subcommittee F15.18, dated October 20, 1995.

5. Letter from John Preston, P.E., Directorate for Engineering Sciences, CPSC, to Mr. Willion S. Suvak, P.E., Chairman, Crib Section of ASTM Subcommittee F15.18, dated November 8, 1995.

6. Letter from John Preston, P.E., Directorate for Engineering Sciences, CPSC, to Mr. Willion S. Suvak, P.E., Chairman, Crib Section of ASTM Subcommittee F15.18, dated July 10, 1996.

7. List of Crib Slat Incidents -- 1/1/90 to 12/30/95 (prepared by John Preston, CPSC/ES, 6/12/96).

8. Chronology of Crib Slat Activities (prepared by John Preston, CPSC/ES, 10/11/96).

9. Memorandum from Carol Cave, Office of Compliance, to Debbie Tinsworth, Project Manager, dated October 17, 1996, entitled "Crib Slat Disengagement."

10. CPSC Press Releases No. 91-114, dated August 22, 1991; No. 95-076, dated February 10, 1995; No. 95-088, dated March 1, 1995; No. 96 December 1995.

11. Sample Letter from David Schmeltzer, Assistant Executive Director, Office of Compliance, CPSC, to Crib Manufacturers and Importers, November 15, 1995.

12. Letter from Marc Schoem, Director of Corrective Actions, CPSC, to Mr. William Macmillan, Chairman, Juvenile Products Manufacturers Association, Inc., February 8, 1996.

13. Canadian Standard for Cribs, Portable Cribs and Cradles, PSB-TC-076, Printed in Trade Communique, Issue N. 7, October 1986.

14. ASTM F1169-88, Standard Specification for Full Size Baby Crib.

15. Memorandum from Robert Hundemer, LSEL, to Deborah Tinsworth, Project Manager, dated November 5, 1996, entitled "Crib Slat Testing."

16. Memorandum from Ronald L. Medford, Assistant Executive Director, and Deborah Kale Tinsworth, Project Manager, to the Commission, dated November __, 1996, "Options Paper: Crib Slat

Disengagement."