Staff Report to Congress Pursuant to Section 104(e) of the Consumer Product Safety Improvement Act of 2008 Recall Notification Technology

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*This report was prepared by the CPSC staff, has not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

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Executive Summary

Section 104(e) of the Consumer Product Safety Improvement Act of 2008 (CPSIA) requires the U.S. Consumer Product Safety Commission (CPSC or Commission) to review recall notification technology on a periodic basis and assess the effectiveness of such technology for durable infant or toddler products. In this first review of such technology, CPSC staff used monthly data reported by the recalling firms and collected by the Office of Compliance and Field Investigations regarding 32 stroller and crib recalls announced in fiscal years 2010 and 2011.

The Commission defines a recall as any repair, replacement, or refund program. The purpose of a recall is to seek the remediation of the hazard present in the recalled product to minimize the risk of injury or death to the user or other people. Traditionally, the success of a recall program is measured by calculating the percentage of the number of corrected products to the number of products sold to consumers. Recall announcements are intended to reach all, or as many users of the recalled product as possible, and to inform them about the risks associated with the product. Upon receipt and comprehension of the recall message, consumers will assess many factors, such as perceived risk; product price; cost of compliance with the recall in terms of effort, time, and lack of utility of the product; and useful life of the product, and then they will make a decision on whether to comply with the announcement (*e.g.*, obtain a retrofit kit or return or replace the product). Consumers may also choose an alternative method of complying with the recall, such as discarding the product or removing the product from use, both of which could still reduce or eliminate the risk, but not be recorded as corrective actions. Consumers also may choose to continue to use the product (sometimes with modified behavior) if they deem the risk associated with use of the product to be low. Therefore, the reported correction rate of the product may not necessarily indicate—and likely underestimates—the success of the recall notification method.

In the 32 recalls studied, the most preferred recall notification methods used by the firms included retail store posters, websites, direct mail, phone calls, and an “Other” category, which includes a number of technologies not listed separately. On average, approximately 25 percent of consumers who were believed to be using the recalled products contacted the firms to inquire about the recalls. The top consumer-acknowledged mechanisms of initial awareness of the recalls included websites and “Other” categories, distantly followed by direct mail letters, phone calls, TV, radio, and retail store posters.

1. Background

Section 104(e) of the CPSIA requires the Commission to review recall notification technology on a periodic basis and assess the effectiveness of such technology in facilitating recalls of durable infant or toddler products. This report is the first review of such technology and is being submitted to the appropriate congressional committees.

1.1 Recall Response Model

The Commission defines a recall as any repair, replacement, or refund program. The purpose of a recall is to seek the remediation of the hazard present in the recalled product to minimize the risk of injury or death to the user or other people. A recall announcement by the firm and the CPSC is only the first step in a complex series of events before individual consumers are motivated to comply with the recall message. In order to achieve reasonable response rates among consumers, it is necessary to understand, at a detailed level, the dynamics of the entire chain of events from recall announcement to consumer action. The communication/persuasion process consists of successive information-processing behavioral sub-steps that create the persuasive impact in the target person. Based on a communication/persuasion model (McGuire, 1989), the response steps that mediate persuasion are:

1. Exposure to the communication;
2. Attending to the communication (notice of the message);
3. Liking and becoming interested in it;
4. Comprehending it (learning what);
5. Skill acquisition (learning how to respond to it);
6. Yield to the message (attitude change);
7. Memory storage of content and/or agreement;
8. Information search and retrieval (be able to recollect the message);
9. Deciding on the basis of retrieval;
10. Behaving in accordance with decision;
11. Reinforcement of desired acts; and
12. Post-behavioral consolidating.

When a firm announces a recall using direct and/or mass notification methods, a certain percentage of customers will be aware of the recall announcement and some will proceed to take action in response to the recall. At each of the steps listed above, a smaller number of consumers moves on to the next step. Only by understanding the process in a systematic, rigorous analytical framework, can prescriptive measures be taken to improve recall response rates.

1.2 Factors Affecting Recall Response Rates

Consumers' motivation to respond to a recall message depends on many factors. If they perceive the risk associated with use of the product to be small, consumers may continue to use the product. Even when consumers are motivated to take action in response to the recall, the nature of the action required by the consumer might have a high cost of compliance (*i.e*., effort, time, lack of utility of the product). In this event, consumers may choose to discard the product, remove it from use, or modify their behavior in using the product. Even though the risk might be effectively eliminated or significantly reduced with these measures, the *reported* product correction rates will not capture these actions.

Consumers are more likely to return more expensive products and products with a relatively long useful life (Recall Effectiveness Research, 2003; Product Recall Research, 2000). An examination of the British voluntary product recall system in 2000 concluded that items costing less than £10 (approximately $15 at that time), usually achieved lower recall rates (less than 10 percent); items costing more than £10 had a recall rate of 44–51 percent (Product Recall Research, 2000).

Per section 104(e) of the CPSIA, recall notification technologies are to be assessed for durable infant or toddler products. These products have a relatively high price and long useful life. Per 16 CFR § 1130.2(a), the term "durable infant or toddler products" means the following products, including the combinations thereof:

1. Full-size cribs and non-full-size cribs;
2. Toddler beds;
3. High chairs, booster chairs, and hook-on chairs;
4. Bath seats;
5. Gates and other enclosures for confining a child;
6. Play yards;
7. Stationary activity centers;
8. Infant carriers;
9. Strollers;
10. Walkers;
11. Swings;
12. Bassinets and cradles;
13. Children's folding chairs;
14. Changing tables;
15. Infant bouncers;
16. Infant bathtubs;
17. Bed rails; and
18. Infant slings.

1.3 Recall Notification Technologies

This report focuses on recall notification methods (or technologies) and resulting awareness among the recipients of the message. The Commission encourages companies to be creative in developing ways to reach owners of recalled products and motivate them to respond. The following are examples of types

of notices that are used. This list is not exhaustive, and as new or innovative methods of notice and means of communication become available, CPSC staff encourages their use:

- A joint news release from CPSC and the company;
- Targeted distribution of the news release;
- A dedicated toll-free number and/or fax number for consumers to use to respond to the recall notice;
- Information on the company's websites;
- A video news release or online video to complement the written news release;
- A national news conference, and/or television or radio announcements;
- Direct notice to consumers known to have the product—identified through registration cards, sales records, catalog orders, or other means;
- Direct notices to distributors, dealers, sales representatives, retailers, service personnel, installers, and other persons who may have handled or been involved with the product;
- Purchase of mailing lists of populations likely to use the product;
- Paid notices via television and/or radio;
- Paid notices in national newspapers and/or magazines to reach targeted users of the product;
- Paid notices through local or regional media;
- Use of social media platforms;
- Incentives, such as money, gifts, premiums, or coupons, to encourage consumers to return the product;
- Point-of-purchase posters;
- In-store information kiosks;
- Notices in product catalogs, newsletters, and other marketing materials;
- Posters for display at locations where users are likely to visit, such as stores, medical clinics, pediatricians' offices, day care centers, repair shops, and equipment rental locations;
- Notices to repair/parts shops;
- Service bulletins;
- Notices included with product replacement parts/accessories;
- Notices to day care centers; and
- Notices to thrift stores.

1.4 Communication Channels to Receive News or Recall Messages

Television remains the most widely used source for national and international news; however, the Internet has been closing in on television over the last decade (Pew Research Center, 2011). Among the respondents of a survey, 66 percent say television is their main source of news, compared to 41 percent who say the Internet is their main source[1]. Age, income, and education level appear to have a large impact on the main source of getting news. People with household incomes under $30,000 cite television (72%) as their major source of news, rather than the Internet (34%). While college graduates receive the news from television (54%) and the Internet (51%) roughly equally, only 29 percent of those with a high school diploma or less education cite the Internet, versus 75 percent who cite television. For people younger than 30, the Internet has exceeded television as the main source of news. Among 30 to

[1] Multiple responses were accepted; percentages may total more than 100%.

49 year olds, 48 percent say the Internet is their main source, and 63 percent cite television. For people ages 50 to 64, 71 percent say television is their main source of news, followed by newspaper at 38 percent, and then the Internet at 34 percent. The decline in relying on television as the main source of national and international news crosses all age groups.

A survey of 500 Illinois parents regarding product safety shows that 50 percent of the respondents learn about recalls on TV, 15 percent through the Internet, 9 percent in retail stores, 6 percent in the newspaper, and 3 percent from e-mail alerts (Kids In Danger, 2009). A telephone survey regarding a nationwide recall of hotdogs and deli meats concluded that 70 percent of the respondents who knew about the recall learned about it through TV (Patrick, 2007). Similarly, television was the initial method of becoming aware of a contaminated spinach recall in 2006, as nearly three-quarters (71%) of those aware of the recall reported. Nine percent reported that they first learned about the recall through radio, and 8 percent learned about it from another person (Cuite et al., 2007).

In a focus group study commissioned by the CPSC, e-mail was the most preferred method of alerting participants about a recall; however, some participants also stated that they would not be willing to provide their e-mail addresses for fear of spam and would make an exception only for certain products (The Polling Company, 2007b). Another focus group study also revealed that e-mail, followed by television, and then website links were the most preferred methods of recall notification (The Polling Company, 2007a).

In a Recall Effectiveness Meeting held by the CPSC (New Tools for Recall Effectiveness, 2003), a home shopping retailer reported that the firm had access to the contact information of their customers and was able to achieve a 60 percent response rate to the recalls. Out of all the consumers reached for a recall, one manufacturer directly reached about 60 percent of them using warranty registration cards, a customer service database, and other miscellaneous store customer lists. The other 40 percent contacted the firm after learning about the recall mainly from the website (82%), retail store poster (5%), television (2.4%), and other media, such as magazines, newspapers, and radio (1.6%). Manufacturers commented that the mass marketing techniques reach their maximum effectiveness shortly after the recall announcement and decrease thereafter. Websites are believed to be a better avenue for long-term communication with consumers, particularly with users of secondhand goods.

One way of collecting the contact information of consumers is to have consumers fill out and send in to the firm product registration cards, if provided. Even when registration cards are available to consumers, however, they may choose not to fill out the card for various reasons, including the product may have cost very little or the consumer may fear having their personal information shared for marketing purposes. A ready-to-assemble office furniture manufacturer reported that approximately 9 percent of the original purchasers used the warranty registration card (Recall Effectiveness Meeting, 2003). NHTSA (Walz, 2002) estimates that child safety seat registration increased from 3 percent prior to 1993—when Federal Motor Vehicle Safety Standard 213 started requiring manufacturers to provide a postage-paid registration form with each new child safety seat sold—to an average of 27 percent over the years 1996

to 2000. The repair rate for recalled child seats also increased, from 13.8 percent before the registration requirement went into effect, to 21.5 percent after the registration cards became a requirement.

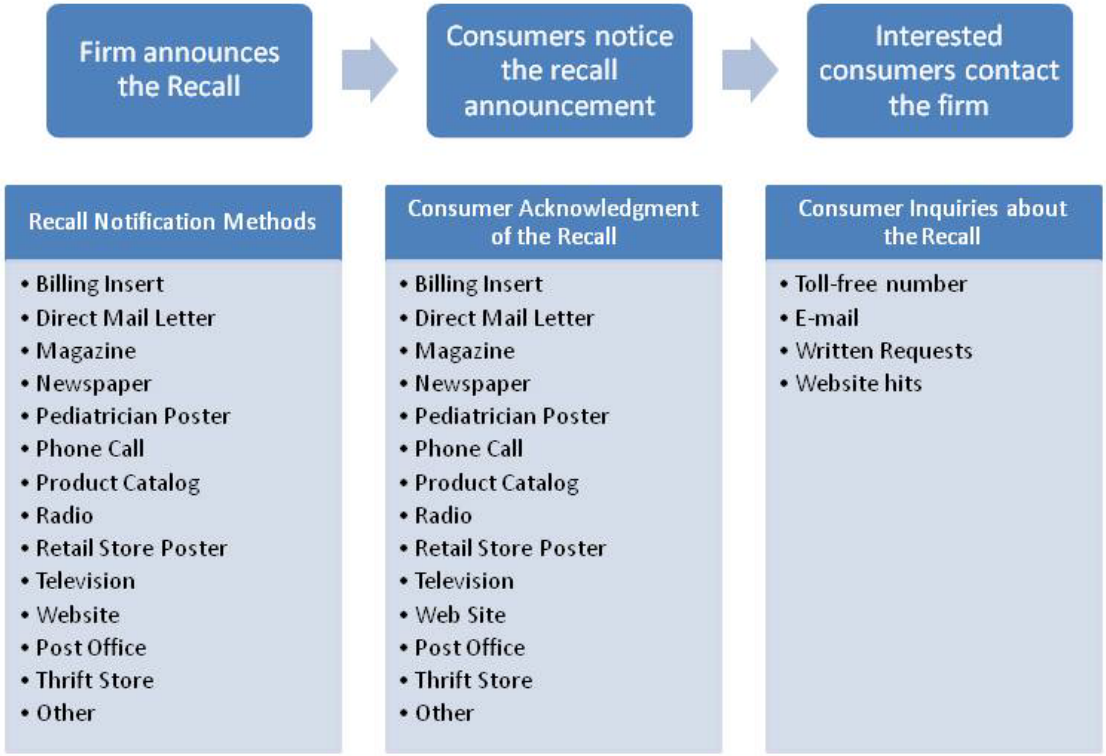

Figure 1. Recall notification, acknowledgment, and inquiry methods

2. Analysis

2.1. Scope of this Report

This report includes an analysis of 32 crib and stroller recalls issued in fiscal years 2010 and 2011. On average, the recalls covered a 6-year span when these products were sold to consumers. The number of recalled products totaled more than 13 million units, with a weighted average product retail price of $188. The average length of time between the product recall announcement date and product last sold date was 8-½ months, while the range was from zero to 34 months. All recalls studied asked the consumer to contact the firm to obtain a repair kit. In occasional cases, a store credit or replacement of the product was offered.

In the following sections, we will summarize the methods that firms used to inform consumers about the recalls; the mechanisms with which consumers reported becoming aware of the recalls; the methods that consumers used to inquire about the recalls; the estimated number of consumers reached by direct and indirect communication channels; the estimated number of products currently in use; and the effectiveness of the recalls and recall notification methodologies.

2.2. Reported Methods Used to Inform Consumers about the Recalls

Among the notification methods reported by the firms, billing inserts, direct mail, and telephone calls are considered "direct notification methods." Notifying consumers via e-mail also can be considered direct; however, the current format of the reporting form does not include e-mail as a separate category. CPSC staff assumes that firms include e-mails in the "Other" category. All of the recalls included a toll-free number and a website listed in the recall announcements for effective communication with consumers. Figure 2 shows the notification methods employed by the firms. A total of 25 firms reported to CPSC one or more notification methods.

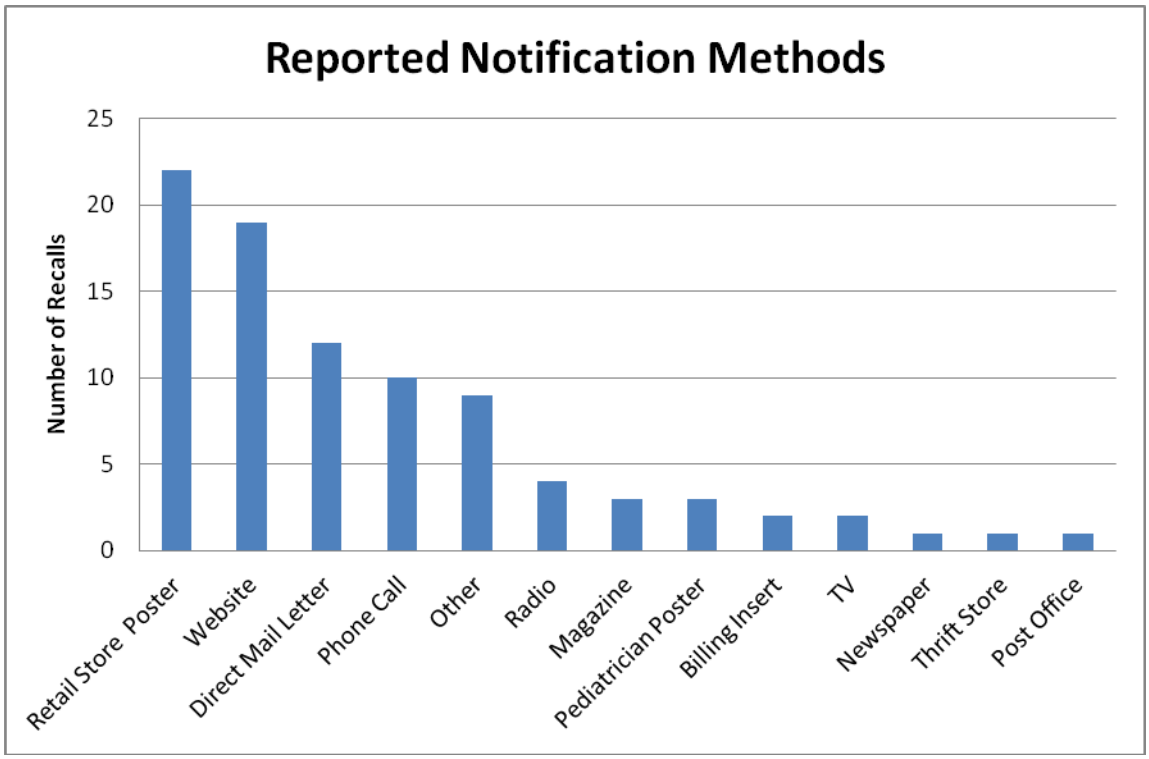

Figure 2. Notification methods reported by the firms

As expected, the number of products sold has a significant impact on the methods that firms use to reach the target consumers. Firms that sold less than 10,000 units of the recalled product at the time of the recall used direct mail, telephone calls, retail store posters, and websites as notification methods. On the other hand, firms that attempted to reach more than 1,000,000 customers used all available methods of notification.

2.2.1. Direct Notification Methods

Billing Insert

This method was used in two recalls. A billing insert could be a useful method in that the billing addresses for company-issued credit cards are usually kept more up-to-date compared to other types of

mailing lists. However, the method is not useful if the consumer does not use the firm's credit card or the current user of the product is different from the original purchaser of the product. Moreover, for individuals with inactive accounts, or those who elect to receive their bills online exclusively, the accuracy of this contact information may become less reliable over time. Billing inserts were used for less than 1 percent of consumers who were notified directly.

Direct Mail

Direct mail notification was used in 12 recalls. The success of this method is dependent partly upon the availability of a list of customer names and addresses. Additionally, the mobility of the consumers and the change in ownership of the product may reduce the effectiveness of this method. The percentage of people who changed residences between 2010 and 2011 was 11.6 percent; whereas, 18 percent of individuals age 1 to 4 relocated in the same year (U.S. Census Bureau, 2011). Direct mail notifications were used for approximately 60 percent of consumers with whom firms attempted to make contact directly.

Phone Calls

Firms attempted to contact consumers via telephone in 10 recalls. The success of this notification method depends on the availability and accuracy of the phone numbers of the consumers who purchased the recalled product. Phone call notification was used for approximately 40 percent of consumers with whom the firms attempted direct notification.

2.2.2. Mass Notification Methods

The success of the mass communication methods is dependent upon the actual owners noticing the recall announcement at the time of contact with the announcement. Following are the mass communication methods reported by firms in the recalls studied:

Magazines and Newspapers

Three companies reported attempting to notify the current owners of the recalled product via advertisement in consumer magazines, and one firm reported using a newspaper advertisement.

Pediatrician Posters

Three companies attempted to inform consumers via posters in pediatricians' offices.

Radio and TV

In four recalls, firms made announcements via radio, and two firms used TV as a notification method. A few of the recalls were announced by the CPSC using TV shows, and as a result, they reached an audience of more than 50 million.

Retail Poster

This is the most frequently used method of notification. A total of 22 recall announcements were posted in retail stores.

Post Office and Thrift Stores

One firm announced the recall in post offices and thrift stores.

Video News Release (VNR)
Although none of the firms reported notifying the consumers via video news release, the CPSC issued video news releases in seven of the recalls studied.

2.2.3. Other

This category includes all other types of direct or mass notification methods. Some examples are as follows:

- Mass Electronic Mailing: Firm may send mass e-mails to consumers who are registered in the firm's database, regardless of whether they purchased the recalled product.
- Direct Electronic Mailing: This method of direct notification can be used if the consumer's e-mail address is known by the firm from purchases using store catalogs or store loyalty or rewards cards.
- Posters in Child Care Centers: Firms may place posters in child care centers attempting to reach the population with children.
- Social Media: CPSC Twitter and YouTube methods were used for several recalls studied in this analysis.

2.3. Reported Awareness Mechanisms Acknowledged by Consumers

In their communications with the firm, consumers may report the mechanism by which they initially became aware of the recall. Consumers may have been informed of the recall via several methods, but they are expected to report only the method that *initially* informed them of the recall. According to the information reported by the firms, approximately 353,000 consumers reportedly acknowledged a recall announcement via one of the methods listed in the monthly progress update. The highest number of recalls (12) was learned initially using a website. Direct mail (9), phone calls (8), retail store poster (7), and magazines (6) were the other high-ranking communication mechanisms reported by consumers (Figure 3). A total of 13 firms reported one or more consumer awareness mechanisms in their monthly updates. Unfortunately, there are several discrepancies between the firms' reported methods of notification and the awareness mechanisms reported by consumers. For example, there are reports indicating that the firm reported there were no phone calls made, nor were any direct mail notifications sent to consumers; whereas, consumers reported that they had received phone calls or direct mail notifications through which they became aware of the recall. This could be due to poor data collection and tracking by the firms or because consumers may not always remember the initial method of awareness of the recall.

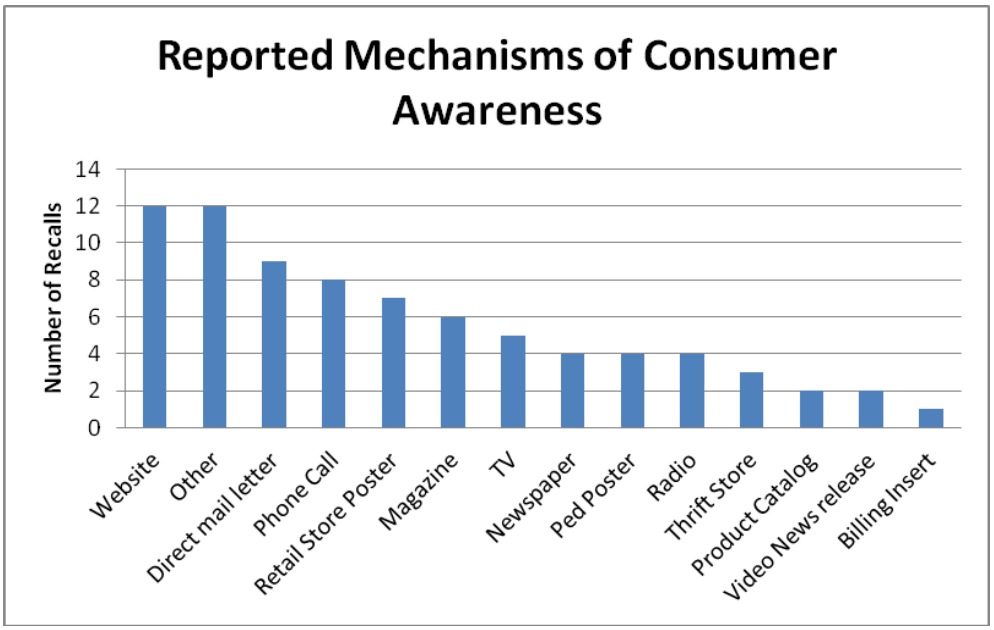

Figure 3. Initial mechanisms of awareness reported by consumers

2.4. Reported Methods of Consumer Inquiry

Consumers who are aware of the recall may contact the firm to learn more details about the recall or to order a retrofit kit. Figure 4 shows the number of communication methods initiated by consumers for the studied recalls. A total of 28 firms reported one or more methods of consumer inquiry. In 27 recalls, a toll-free number was the communication method most frequently used by consumers, followed by e-mails in 16 recalls, written requests in 7 recalls, and messages via company websites in 5 recalls (Figure 4).

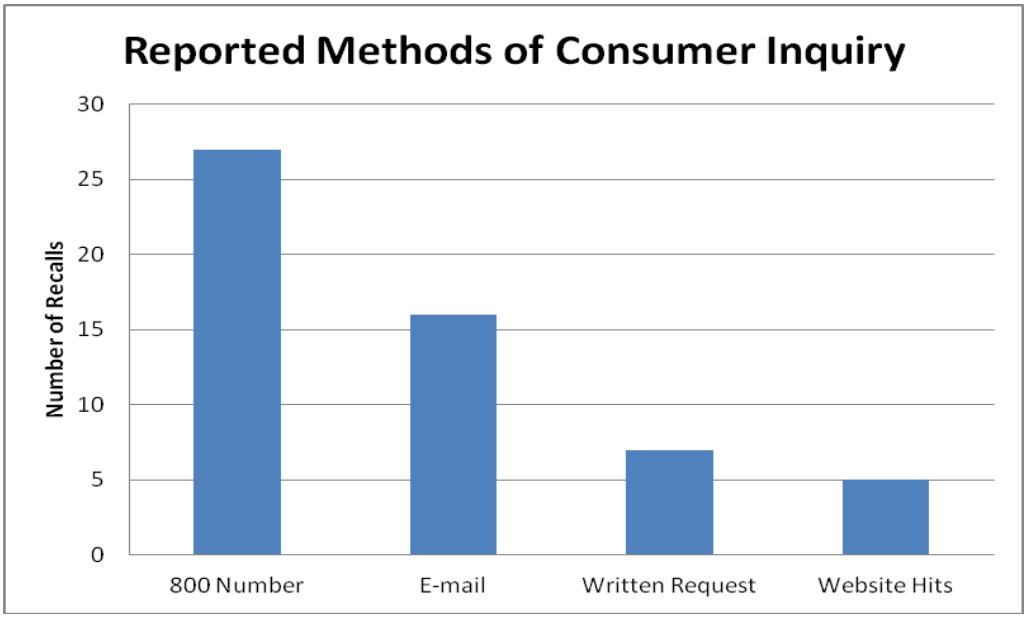

Figure 4. Reported communication methods initiated by consumers

2.5. Estimated Number of Consumers Who Became Aware of the Recalls

2.5.1. Consumers directly notified by the Firms

Based on the monthly updates reported, firms attempted to notify directly only a small percentage of the consumers who may have been using the recalled products. Out of the products sold, firms notified fewer than 1 percent of consumers using billing inserts, approximately 7 percent using direct mail, and 5 percent via phone calls. The major reason for the limited notification could be that the firms didn't know the contact information of the consumers who purchased the recalled product. Firms reported attempting to notify approximately 467,000 customers, of which direct mail was the major means of communication.

2.5.2. Consumers Reached via Mass Methods of Communication

Although firms reported the numbers of mass communication methods that they have used, the number of consumers who may have been reached by mass communication methods cannot be predicted easily. For example, firms report only the number of posters placed at retail stores, not the number of consumers who visited the store and read the announcement.

2.5.3. Consumers Who Reported Becoming Aware of the Recall

Approximately 353,000 consumers reported having been informed about the recall announcements using the methods identified in the firms' monthly progress updates. Approximately 44 percent of the consumers acknowledged that they have been informed about the recall via website. Approximately 25 percent were informed via a method in the category, "Other." Close to 9 percent of consumers reported having been informed about the recall via direct mail, followed by phone calls (8%) (Figure 5).

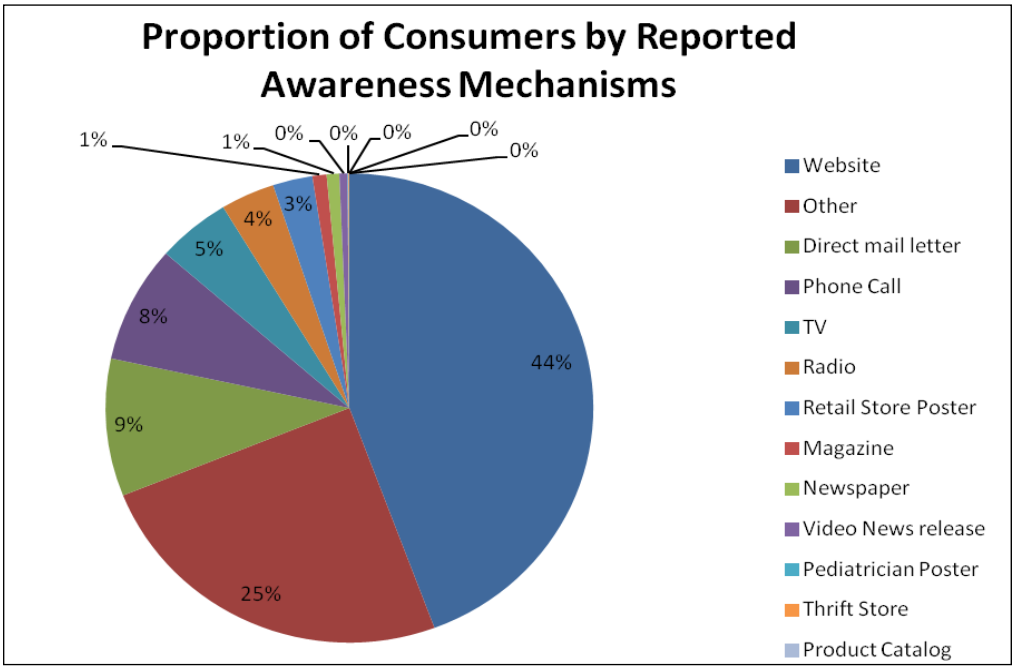

Figure 5. Proportion of consumers by reported initial mechanism of awareness

2.5.4. Consumers Who Inquired About the Recall

When consumers become aware of the recall, they may contact the firm to inquire about the announcement. Approximately 1.2 million customer inquiries have been reported by the firms in their monthly progress updates. More than 700,000 consumers contacted the firms via the website; more than 280,000 made phone calls to the firms; more than 200,000 sent e-mails; and 178 sent postal mail. Note that there is a difference between the numbers of consumers who inquired about the recall, versus the number of consumers who reported the initial mechanism by which they became aware of the recall. Consumers may inquire about the recall without acknowledging the mechanism by which they became aware of the recall.

2.6. Estimated Number of Products Currently in Use

Even though the total number of products sold in the recalls studied is more than 13 million, not all products are still in use. Both cribs and strollers are products with a limited lifetime for any given child. As children grow, they move out of cribs and into youth or regular beds; and after a certain age, they stop using strollers. ASTM F1169-10, Standard Consumer Safety Specification for Full-Size Baby Cribs, states that, due to the potential fall hazard, when a child is able to climb out or reaches the height of 35 in. (89 cm), the crib should no longer be used; the child should be placed in a youth or regular bed (ASTM, 2010). The height of 35 inches corresponds to the stature of 95th percentile 20–23 month old children (Snyder et al., 1977). ASTM F833-11, Standard Consumer Safety Performance Specification for Carriages and Strollers, states that strollers normally are used for children from infancy to 36 months of age (ASTM, 2011). On the other hand, both products have the potential to be passed on to other children. It is estimated that approximately 37 percent of all cribs are handed down or purchased secondhand (Jenkins, 2010). Similarly, approximately 27 percent of all strollers are handed down or purchased secondhand (Jenkins, personal communication). When the number of products in consumers' hands is adjusted based on the above secondhand use rates, and when the use periods per child are considered to be 36 months for strollers and 24 months for cribs, the total number of products in use at the time of the recalls is calculated as 6.3 million versus 13 million products that have been sold to consumers at the time of the recalls. If a recalled product is not in use anymore, the risk associated with that recalled product is removed; and therefore, it should not be accounted for when calculating recall effectiveness rates.

2.7. Effectiveness of the Recalls

One conventional way of determining the effectiveness of recalls has been to calculate the ratio of the number of corrected products to the number of products sold to consumers. According to the reports provided by the firms, the average simple correction rate with this method is calculated as 15 percent. However, when the number of products in consumers' hands is adjusted based on the secondhand use rates, and when 36 months and 24 months are used as the average use time of strollers and cribs per child (see above section), the adjusted correction rate for these products is 20 percent. In addition to the reported correction rates (simple or adjusted), consumers may choose to remove the product from use, or they may discard the product, both of which eliminate the risk but cannot be captured in the

correction rates. Therefore, the calculated 20 percent correction rate arguably is conservative, and the actual recall effectiveness may be higher.

2.8. Effectiveness of the Recall Notification Technologies

The ultimate objective of any recall announcement is to reach as many of the users of the recalled product as possible and to inform them about the risks associated with the product. Whether consumers will take the action recommended by the recall announcement and obtain a retrofit kit or return or replace the product will vary, depending upon many uncontrollable factors.

2.8.1. Data Provided to CPSC

As previously discussed, although firms have reported the number of methods they used to notify consumers about the recalls, reported numbers for mass communication methods, in particular, are not the number of consumers who have been reached. On the other hand, the acknowledgements that the firms received from consumers are representative of individual users and may give a better indication of the effectiveness of the mechanisms by which the consumers have actually become aware of the recall. However, it should be noted that only 13 of the 32 recalls studied have reported information on the number of consumers who acknowledged the recall announcements.

The average of the ratios of consumers who reported a method of initial awareness of the recall to the number of products sold is 14 percent, and the average of the ratios of consumers who reported a method of initial awareness of the recall to the adjusted number of products currently in use is 20 percent.

After consumers learn about the recall, some will proceed to contact the firm via available means to understand the announcement, the risk, and the proposed remedy. Staff believes that this is valuable information because it relates directly to the consumers who are motivated to have their recalled products repaired. The average of the ratios of the number of consumer inquiries made related to the recall to the number of products sold is 18 percent. The ratio of the number of consumer inquiries to the adjusted number of products currently in use is approximately 25 percent.

A total of 28 firms have reported receiving consumer inquiries. Note that one of the remaining four firms was able to contact all of their customers, and therefore, eliminate the need for consumer inquiry. When consumer inquiries are compared to the direct notifications that firms have reported, 15 firms did not report any kind of direct consumer notification but received more than 450,000 consumer inquiries. Staff speculates that consumers must have learned about the recall through indirect notification methods, which proved evidently to be somewhat effective in reaching out to consumers. Further, even the firms that have reported notifying consumers via direct communication methods with a total of approximately 467,000 notifications still received more than 740,000 consumer inquiries. Therefore, the difference between the direct notifications and consumer inquiries could be attributed to the success of other methods.

3. Conclusion

This report summarizes the findings from an analysis of 32 stroller and crib recalls issued in fiscal years 2010 and 2011. The most preferred recall notification methods used by the firms include: retail store posters, websites, direct mail, and phone calls, as well as an "Other" category, which includes a number of technologies not listed separately. The top consumer-acknowledged mechanisms of initial awareness of the recalls include websites and "Other" categories, followed distantly by direct mail letters, phone calls, TV, radio, and retail store posters. Even though most of the firms could reach only a small portion of the consumers via direct notification methods, consumer awareness is still not trivial when measured using the amount of consumer inquiries that firms have received regarding the recall. The difference may be attributable to conventional mass communication, as well as face-to-face and online word-of-mouth communication channels, such as e-mail, Internet, blogs, forums, and other social media avenues. E-mail users are most likely to send negative news about financial fraud, health, and safety, mostly because they would like to save others from making bad decisions. Word-of-mouth through social networking expands quickly if a product failure or a product safety issue is of concern (Allsop et al., 2007).

Information sharing through online channels may be associated with the increased use of e-mail and the Internet, considering that 79 percent of all American adults go online. The most preferred online activities are e-mail and search engine use. The third most popular activity is searching for health information online (83%) (Zickuhr, 2010). Although the research associated with the effectiveness of recall notification methods is limited, findings from marketing research can be beneficial in understanding the best way to reach consumers. Use of e-mail and Internet is widespread; however, the traditional channels of communication, such as television, radio, newspaper, and direct mail are still favored by consumers in marketing communications, partly because trust and reliability of information are believed to be higher (Danaher & Rossiter, 2011). Therefore, social media advertising, complemented by traditional media, reinforce communication and provide credibility, which proves the effectiveness of multichannel communications strategy (Bond et al, 2010). Messages tailored to a particular audience with a high level of exposure are found to be more effective (Robertson, 2008). "Entertainment-Education" approaches in television programming have been used successfully in a number of health campaigns. Integrated marketing, which has become popular as a cohesive and targeted approach, could be used in communicating recall messages. Firms can explore the avenues—such as online communication channels, including search ads, display ads, online communities, e-mail, user-generated content sites, and mobile marketing, as well as more traditional channels (*e.g.*, TV, print, direct mail, radio)(Keller, 2009)—and finally develop a hybrid and targeted strategy in the communication of a recall message. Blending e-mails, social media, and mobile texting with targeted messages, in addition to highly effective but short-lived conventional mass media channels, can result in a high level of consumer awareness of the recall announcements.

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