

PRODUCT RECALL

NOTIFICATION EFFECTIVENESS

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Executive Summary

The Consumer Product Safety Commission (CPSC) staff have raised questions about the adequacy of the data obtained from monthly progress reports used to generate statistics about the effectiveness of recall notifications. These statistics may not accurately convey how consumers learned about a recall.

Our primary goal in this project was to determine the sources of variations in the reported statistics regarding the effectiveness of each notification method. These variations create difficulties in comparing the relative effectiveness of the different notification methods. After analyzing the public notification data collection process, we recommended a number of suggestions for improving the current data collection process. Improving the data collection process will allow the Commission to better gauge the effectiveness of various notification methods. Therefore, future recalls will benefit from improved notification dissemination to consumers.

We analyzed the current monthly progress report form (MPRF) by interviewing the creator of the form and compliance staff. The primary outcomes from the interview with the creator of the form were the definitions of the fields on the current MPRF and the names of the personnel responsible for calculating the current effectiveness statistics. The interviews with seven compliance officers and the director of the Recalls & Compliance Division provided us with detailed information about the corrective action plan (CAP) negotiation and monitoring processes.

The Office of Compliance staff identified which statistics should be gathered from the monthly progress report. We analyzed current reports and interviewed the Office of Compliance Program Manager to determine the mathematical models used to

generate effectiveness statistics. In order to generate correct statistics for media notifications that are comparable to statistics generated for direct notifications, we devised a method to estimate the number of affected consumers a particular notification is likely to reach. We developed mathematical models to compensate for the differences between media and direct notifications.

We conducted interviews with representatives of seventeen firms that have performed recalls. These companies have either depended on CPSC staff to define the sections on the MPRF or have defined the sections themselves. These definitions varied since no formal instructions for filling out the MPRF existed. Therefore, statistics compiled from the monthly progress reports do not accurately measure recall notification effectiveness. We concluded that the form should be simple and self-explanatory to avoid any confusion over the definitions of terms and headings. In order to improve the clarity of the form we developed a new version of the MPRF that achieves this goal. We recommend that the Commission complete a study of companies using this form or another revised form to ensure its usability, appropriateness, and accuracy.

Firms receive the MPRF with the CAP Approval letter, which often is sent out days or weeks after the CAP has been implemented. We recommend distributing a sample of the revised form and instructions with the full report request to notify firms of the data collection requirements earlier in the process. A customized MPRF containing only those notification methods negotiated in the CAP should be distributed later with the CAP Approval letter along with definitions of each term and heading.

The Commission has already begun research into an Internet-based version of the MPRF. It is our opinion that advances in Internet technology would allow the

Commission to streamline the monthly progress data collection process and automate many of the data entry tasks for companies that would prefer the Internet-based form. Therefore, we support an Internet-based monthly progress report.

We recommend the development of internal guidelines for recall case closure by Compliance Officers (CO) that would output the expected consumer correction rate for a particular recall. The expected consumer correction rate for a recall appears to depend on several variables including original product retail price, product category, expected product lifetime, average age of the product population, and hazard classification.

Once accurate measures of recall notification effectiveness have been developed and implemented, the statistics should be applied to improve the recall process. These notification effectiveness statistics will indicate which types of notification are most effective in generating consumer corrections of recalled products. These statistics should be considered by the COs when negotiating new recall actions with companies.

Appropriate and effective recall notification will help achieve a primary mission of the Commission: protecting consumers by removing dangerous products from the marketplace.

Authorship Summary

Introduction – All

Background and Literature Review – All

Methodology – All

Results

Monthly Progress Report – Clark, Schwartz, Waldron

Desired Statistical Outcomes – Iadarola, Waldron

Firms' Requirements – Clark, Schwartz

Recall Monitoring Unit – Iadarola, Waldron

Recommendations – All

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Introduction

In 2001, consumer products were associated with 34.3 million medically attended injuries in the United States. The latest injury and fatality statistics indicate that in 1999, 24,800 deaths resulted from consumer product related incidents in the U.S. In order to help protect consumer welfare, the United States Congress passed the Consumer Product Safety Act in 1972. With this act, the U.S. Consumer Product Safety Commission (CPSC) was chartered to protect consumers from injuries and deaths related to the use of consumer products. The Commission has several major tools available in the fight against unsafe products; one of these is the ability to recall consumer products that have been identified as having a defect that poses a substantial risk of injury to consumers.

The CPSC reported that in 2001, fourteen percent of 125 million recalled products were returned for correction (CPSC, 2002). The remaining eighty-six percent of recalled products represent a potential danger to the consumers using them. There are three steps to a product recall. First, the recall notices made available must reach owners of the recalled products. Second, the consumers must make the choice to act on the recall and have their products corrected. Third, the companies responsible for the products must be ready to handle the recall requests and collect data that will help the commission measure the effectiveness of product recalls. A recalling firm is required to submit a monthly progress report to Compliance staff that includes information on the number of consumers who participated in a recall and information on how the consumer learned about the recall.

CPSC staff have raised questions about the adequacy of the data obtained from monthly progress reports used to generate statistics about the effectiveness of recall

notifications. These statistics may not accurately convey how consumers learned about a recall. These inconsistent statistics may be a result of improper database design or a misinterpretation of notification effectiveness reports filed with the Commission.

Our primary goal in this project was to determine the sources of variations in the reported statistics regarding the effectiveness of each notification method. These variations create difficulties in comparing the relative effectiveness ratios of the different notification methods. After analyzing the public notification data collection process, we recommended a number of changes for improving the current recall data collection process. Improving the data collection process will allow the Commission to better gauge the effectiveness of various notification methods. Therefore, future recalls could benefit from improved notification dissemination to consumers.

One aim of the monthly progress report is to quantify the number of attempted notifications in each category as well as the number of affected consumers indicating that they heard about the recall through that category. The category totals are compiled into a database at the Commission and are used to compute an effectiveness percentage for each notification type. Currently, these percentages are calculated as a ratio of the reported consumer responses to the reported notification attempts. However, for reasons described below, the statistics as currently calculated are not a useful indicator of notice effectiveness.

Across the domain of notification methods, the calculated effectiveness percentages range from hundredths of one percent to hundreds of thousands of percent. The wide range of calculated effectiveness ratios indicates that there is a problem in the collection or calculation of these statistics. M. Schoem, the Director of the Recalls &

Compliance Division, stated that formal definitions have never been developed for the notification methods referenced on the monthly progress report (personal communication, October 28, 2002). Therefore, each company filing these reports may interpret the categories differently. If the categories for each filed report are not being interpreted the same way, then no usable statistics can be derived from the reports.

The formula used to calculate the effectiveness statistics from the reports does not take into account the fundamental differences among the various types of notifications. For example, direct mailings to registered consumers are treated numerically in the same way as radio advertisements. Each letter sent to a registered owner of a recalled product will result in one owner-impression, defined as one owner of a recalled unit receiving notification of the recall. Hence, 100,000 mailings to 100,000 owners of a product will result in 100,000 owner-impressions. In contrast to this, a radio advertising campaign could potentially reach millions of people. However, only a fraction of these impressions would also be owner-impressions. These differences in media types must be accounted for in any calculation of notification effectiveness statistics.

Background and Literature Review

Specific background information is necessary to fully understand the scope of this project. The following includes discussions of the dangers posed by defective consumer products, government agencies created to establish and enforce safety standards for commercial goods, the CPSC recall process, and problems in the effectiveness data collection. We also present some research opportunities related to these areas.

Effects of Dangerous Consumer Products

Consumer products were associated with 29.9 million medically attended injuries in 1995 (Miller et al, 2000). The total cost, including medical expenses, lost wages, and insurance payouts, of these injuries was estimated at \$405 billion. In addition, consumer products were associated with 22,000 deaths in 1995. The cost of these deaths was estimated at \$110 billion. In 2001, consumer products were associated with 34.3 million medically attended injuries. Based on the increase in the number of injuries and in the consumer price index (CPI) published by the United States Bureau of Labor Statistics, these injuries cost an estimated \$540 billion. The latest statistics available indicate that consumer products were associated with 24,800 deaths in 1999. Based on the increase in the number of deaths and in the CPI, these deaths cost an estimated \$136 billion. The total cost of injuries and deaths is equivalent to about seven percent of the entire United States gross domestic product each year. The results of our project can help prevent these injuries and deaths by allowing the Commission to perform effective recalls that better disseminate notice of recall actions to the public.

Federal Agencies

The federal agencies that have authority over the majority of product recalls in the United States are the Food and Drug Administration (FDA), the National Highway Traffic Safety Administration (NHTSA), and the Consumer Product Safety Commission (CPSC). Each of these organizations has jurisdiction over certain categories of commercial goods. They also have the ability to require a manufacturer of a product that has been determined to present a substantial risk of injury to recall the product for repair, replacement, or a refund (CPSC, 1999).

Food & Drug Administration

Congress created the U.S. Food and Drug Administration in 1906 with the passage of the Federal Food and Drugs Act, also known as the Wiley Act (Kurian, 1998). The agency was given jurisdiction over foods, human and veterinary drugs, devices for human use, and cosmetics. In 1997, Congress passed the FDA Modernization Act to reaffirm the agency's mission with respect to products over which the FDA has authority. The act declared the following mission statement:

To protect the public health by ensuring that foods are safe, wholesome, sanitary, and properly labeled; human and veterinary drugs are safe and effective; there is reasonable assurance of the safety and effectiveness of devices intended for human use; cosmetics are safe and properly labeled, and; public health and safety are protected from electronic product radiation.

(<http://www.fda.gov/opacom/morechoices/mission.html>, 1998)

Congress gave the FDA limited recall authority over some products by the passage of three acts. These were the Radiation Control for Health and Safety Act of

1968, the Medical Device Amendments of 1976, and the Infant Formula Act of 1980 (Schwartz & Adler, 1983). In addition to recall authority, these acts also established defect reporting requirements for the affected product categories. The Infant Formula Act, in particular, defines a strict protocol for reviewing a manufacturer's actions in implementing a recall. Under these provisions a manufacturer is required to report the actions it has taken to the FDA every two weeks. The FDA Secretary reviews these actions every fifteen days (Schwartz & Adler, 1983).

In 1971, the FDA created a three-level system of product recalls. Class I recalls were defined for products that pose a reasonable probability of causing serious adverse health consequences or death. Class II recalls are for products that may cause temporary or medically reversible adverse consequences or those where the risk of serious consequences is remote. Finally, Class III recalls cover products not likely to cause adverse health consequences. These recalls are technically voluntary, though the FDA has other tools available to induce their implementation (Schwartz & Adler, 1983).

FDA negotiated recalls are generally very successful. For instance, defective medical x-ray equipment is returned nearly one hundred percent of the time. Microwave oven recalls are seventy-five percent effective, and television sets are returned for radiation hazards between sixty-one percent and eighty-one percent of the time (Gibson, 1995).

National Highway Traffic Safety Administration

Congress created the National Highway Traffic Safety Administration with the passage of the National Traffic and Motor Vehicle Safety Act of 1966 (Schwartz & Adler, 1983). This Act gives this Agency authority to issue safety regulations as well as

mandate recalls for motor vehicles and other automotive industry products such as tires, brakes, seat belts, and air bags. In 1974, Congress amended the Act to require manufacturers to correct defective products without charge to the owner. A 1975 study by the Government Accounting Office showed that the return rates for 298 recall campaigns averaged thirty-four percent (Gibson, 1995).

Consumer Product Safety Commission

The Consumer Product Safety Commission was chartered with the passage of the Consumer Product Safety Act (CPSA) of 1972 (CPSC, 1988). The CPSA created the Commission and defined its structure and its responsibilities for protecting consumer welfare. Section 15 of the CPSA defines the responsibilities of manufacturers, distributors, retailers, and importers of defective consumer products that pose a substantial product hazard (Consumer Product Safety Act, 1972). Under this section, each of these entities is required to report to the Commission if it obtains information that reasonably supports the conclusion that a product fails to meet a defined safety standard or other regulation, a product may have a defect that could create a substantial hazard to consumers, or a product presents an unreasonable risk of serious injury or death (CPSC, 1999). The Commission also enforces four other statutes: the Federal Hazardous Substances Act, the Flammable Fabrics Act, the Poison Prevention Packaging Act, and the Refrigerator Safety Act (Schwartz & Adler, 1983). The CPSA gives the Commission authority under each of these statutes to regulate various types of products with the goal of preventing injuries and deaths.

CPSC Product Recall Process

The Commission has the authority to negotiate voluntary recalls with manufacturers as well as to compel a firm to recall a product. The objectives of a recall are threefold:

- To locate as quickly as possible all defective products;
- To remove defective products from the distribution chain and to retrieve them from the possession of consumers; and
- To communicate accurate and understandable information to the public about the product defect, the consumer hazards, and the corrective action plan.

The CPSC categorizes product hazards by severity. Products that are found to exhibit at least a moderate threat, as discussed below, to the safety of consumers are generally recalled. This is accomplished by the creation of a corrective action plan (CAP) for the recall to be executed by the manufacturer. Products that do not exhibit at least a moderate threat to the safety of consumers are not recalled (Schwartz & Adler, 1983).

Process Overview

Before the Commission requests the recall of a product, it must identify a risk of injury to consumers using it. Manufacturers, importers, distributors, and retailers of consumer products are required to inform the Commission about potentially hazardous products by submitting incident reports. The Commission also receives information from a variety of other sources including consumers, medical examiners, coroners, safety officials and the media (<http://www.cpsc.gov/talk.html>, September 30, 2002).

When the Commission learns of a potentially defective product, the Office of Compliance will open an investigation to determine if the product presents a substantial risk of injury to consumers. If a defect is found to exist, the hazard to consumers is classified according to the hazard classes based on the severity of injury. Only products that present a substantial risk of injury are recalled; products that do not present a substantial risk of injury are not recalled.

Once a hazard has been identified and classified by the Commission staff, the manufacturer, distributor, or retailer is asked to propose a CAP for correcting the hazard in the product (Schwartz & Adler, 1983; R. Deppa, personal communication, October 21, 2002; M. Schoem, personal communication, October 28, 2002). The CAP specifies the remedy for the hazard as well as the means to notify consumers about the affected products. The Commission staff evaluates the proposed CAP to determine if it is an adequate plan for correcting the hazard and notifying the public of the danger. If the proposed CAP is not accepted by the CPSC, the firm and the compliance officer handling the recall negotiate appropriate changes to the plan until a compromise acceptable to both parties is reached. Depending on the nature of the product defect and the willingness of the firm to conduct the recall, negotiations can take as little as a few days or as long as a few months. If negotiations fail, the case may be taken to litigation where a court may mandate a CAP. Once a CAP has been approved, the company begins implementing the actions required to complete the recall.

Firms must notify the distributors and retailers of the product to discontinue the sale of the product. They must also disseminate public notice of the recall being implemented with information on how consumers may have their product repaired or

replaced or the purchase price refunded. Several advertising methods can be used to accomplish this including direct mailings to consumers, distributors, and retailers; point-of-purchase posters in retail establishments; press releases; newspaper advertisements; and television advertisements (CPSC, 1988).

After the consumers learn of the recall and make the choice to contact the manufacturer of a recalled product for correction, the company must be able to handle the volume of attempted contacts by consumers. The CPSC recommends that the company have a dedicated hotline for recall purposes (CPSC, 1999). Another area of consideration for recall preparedness is adequate recordkeeping in distribution, quality control, and complaint departments.

According to Harrington and Kamlet, in an article describing risk avoidance and recall preparedness, corporate preparedness for recalls can be divided into four stages known as the Kearney model (1989). Companies in the first stage of development are characterized by a lack of formal planning and little protocol regarding product hazards. There is no centralized responsibility for handling product recalls. Often companies in Stage One have no product recall experience and little knowledge regarding the regulatory and practical requirements of recall execution.

Stage Two companies have a part-time position dedicated to the coordination of safety and recalls. Additionally, companies at Stage Two have some knowledge of, and relationships with, regulatory agencies. A formal but unsophisticated corrective action program and rudimentary product tracking techniques are generally present at this stage.

Stage Three companies have a formal corrective action program. These companies test their preparedness through regular unscheduled audits and recall drills.

They exhibit effective communication with regulatory agencies and consumers when involved in recalls, and have good understanding of the applicable regulations.

Companies at Stage Three use more sophisticated product tracking techniques.

Stage Four builds on all of these areas and extends them into an integrated unit within the company. A Stage Four company will have a safety committee with clearly defined roles. Improvements drawn from process audits and mock recalls are implemented efficiently. Media releases regarding recalls are effectively designed and reach the intended consumer segments. A sophisticated, on-line product tracking system is essential to Stage Four development.

Once the affected products have been removed from store shelves and the consumer has been notified of the hazard, the manufacturer begins implementing the correction phase of the CAP. This is accomplished through a variety of methods including consumer or manufacturer repair of the hazard, a replacement of the defective product, or by refunding the product purchase price to the consumer.

After the product has been repaired or replaced, or the purchase price has been refunded, all of the responsibilities to the consumer have been met. The recall continues for as long as products remain in consumers' possession or in the marketplace. During this period, the company reports the recall notification statistics to the CPSC on a monthly basis (R. Deppa, personal communication, September 5, 2002). The Commission compiles these statistics into its internal databases and reports them to Congress annually.

The CPSC adopted an alternative recall program, named Fast Track, in August of 1997 for companies who wish to report potential product defects and implement a

consumer-level voluntary recall within twenty working days of the initial report. The program was created to expedite voluntary recalls of potentially hazardous products in the marketplace and consumers' hands. The firm contacts the CPSC and sends a full report pertaining to potential problems with the product in question as well as a proposed CAP. CPSC staff reviews and, if acceptable, approves a CAP to be implemented within twenty working days of the first report (CPSC 2000).

Product Hazard Classification

As previously mentioned, the CPSC classifies product hazards into five classes. These are designated A, B, C, D, and X. Class A hazards are defined as existing when "a risk of death or grievous injury or illness is likely or very likely, or serious injury or illness is very likely." A Class B hazard "exists when a risk of death or grievous injury or illness is not likely to occur, but is possible, or when serious injury or illness is likely, or moderate injury or illness is likely." A Class C hazard "exists when a risk of serious injury or illness is not likely, but is possible, or when moderate injury or illness is or is not likely, but is possible." (CPSC, 1999) A Class D hazard does not represent a substantial risk of injury to consumers and is not recalled. Only hazards classified as A, B, or C present a moderate risk of injury to consumers and are recalled. Hazards designated as Class X are the subject of a Fast Track program recall. Class X recalls can span all other hazard classifications (M. Schoem, personal communication, October 25, 2002).

Recall Notice Effectiveness Database

After the negotiation of a CAP, the Commission requests that the company performing the recall collect notification effectiveness statistics from the consumer (R. Deppa, personal communication, October 21, 2002; M. Schoem, personal communication, October 28, 2002). This is accomplished through the requirement of a monthly progress report. A copy of the current report can be found in Appendix D. It characterizes the method by which the consumer learned of the recall into a number of categories, such as direct mail, phone call, television, and point-of-purchase poster. The full listing of categories is contained in sections II and III of the report form.

Purpose

One aim of the monthly progress report is to quantify the number of attempted notifications in each category as well as the number of affected consumers indicating that they heard about the recall through that category. The category totals are compiled into a database at the Commission and are used to compute an effectiveness percentage for each notification type. Currently, these percentages are calculated as a ratio of the reported consumer responses to the reported notification attempts. However, the statistics as currently calculated are not a useful indicator of notification effectiveness.

Potential Problems

Across the domain of notification methods, the calculated effectiveness percentages range from hundredths of one percent to hundreds of thousands of percent. The wide range of calculated effectiveness ratios indicates that there is a problem in the collection or calculation of these statistics. M. Schoem, the Director of the Recalls &

Compliance Division, stated that formal definitions have never been developed for the notification methods referenced on the monthly progress report (personal communication, October 28, 2002). Therefore, each company that is filing these reports may be interpreting the categories differently. If the categories for each filed report are not being interpreted the same way, then no usable statistics can be derived from the compilation of the reports.

The formula used to calculate the effectiveness statistics from the reports does not take into account the differences among the various types of notifications. For example, direct mailings to registered consumers are treated numerically in the same way as radio advertisements. This is a problem because the potential effectiveness of each method is different. Each letter sent to a registered owner of a recalled product will result in one owner-impression, defined as one owner of a recalled product receiving notification of the recall. Hence, 100,000 mailings to 100,000 owners results in 100,000 owner-impressions. In contrast to this, a radio advertising campaign could potentially reach millions of people. However, only a fraction of these impressions would also be owner-impressions. The differences among media types must be accounted for in any calculation of notification method effectiveness statistics.

Methodology

Our project goal was to improve the analysis of recall data collected from firms. We studied the data collection and analysis methods of the CPSC, other government agencies that have recall authority, and private firms involved in recalls. We accomplished this through interviews with compliance officers and database personnel at the CPSC, other organizations, and company representatives, and an analysis of the Commission's monthly progress report (see Appendix D).

Monthly Progress Report Analysis

We interviewed the creator of the monthly progress report form (MPRF) and Compliance Officers (CO) to learn the structure of the current form as well as the procedures for when a MPRF is given to a firm during the CAP negotiation process.

The primary outcomes of the interview with the MPRF creator were the definitions of the fields on the MPRF and the names of the personnel responsible for calculating the current effectiveness statistics. The definitions we sought for the data fields are the working definitions a firm would use in an actual recall.

The seven COs and the Director of the Recalls & Compliance Division provided us with information about the point in the CAP negotiation process at which the MPRF is distributed to firms. We questioned the COs concerning the contacts they have with a firm, notices a firm receives from the CPSC, and any negotiation techniques they may use. We also inquired about any changes recommended by the particular CO pertaining to the MPRF.

Desired Statistical Outcomes

In order to determine what information the Commission intended to gather from the monthly recall progress reports, we conducted a group interview consisting of five members of the Office of Compliance. In addition, we interviewed one member who was unavailable for the group interview. These employees are the intended users of the recall effectiveness statistics. It was important to ensure that a monthly progress report be designed to collect the information they require. The result of this group interview was a set of definitions for statistics that the administration could use to accurately gauge the effectiveness of notification types for recalls of particular products.

Statistical Calculations

After the Office of Compliance staff identified which statistics should be calculated from the monthly progress report data, we analyzed current reports and interviewed the Office of Compliance Program Manager to determine the mathematical models used to generate effectiveness statistics. We requested an explanation of the models that are currently being applied to the monthly progress report data and the formulas that are used to calculate the effectiveness statistics. We then developed our own mathematical models for each identified statistic; statisticians from the Commission's Directorate of Epidemiology reviewed these models. The variables used in the models determined the information required from firms to generate the appropriate effectiveness statistics.

Company Requirements

We interviewed representatives of seventeen firms involved in recalls about their opinions on the current monthly progress report and potential future developments for the report. M. Schoem compiled a list of 30 companies that had recently completed recalls. We contacted all of the companies listed and requested an interview with the personnel who completed the MPRF. We conducted these interviews by phone because the companies involved were located throughout the United States. We coded the responses to the interview questions to facilitate the creation of tables indicating the relative frequency of discrete answers. The questions used in the company interviews are available in Appendix I.

Data Entry Personnel Evaluation

The Office of Compliance Recall Monitoring Unit is responsible for entering the data from monthly progress reports submitted by firms. Currently there is one individual in the unit, whom we interviewed to assess the workload of collecting and entering these data and inquired about the specific data entry process that takes place when a progress report is entered into the database.

Data Entry Job Profile Determination

Agencies such as the FDA and the NHTSA may have departments similar to the Recall Monitoring Unit at the CPSC. We interviewed one manager at each agency to determine the personnel and education level required by the agency in these departments. We compared the personnel at those agencies with the personnel at the CPSC and developed recommendations to account for the differences that exist between the

different agencies in the amount and nature of the data collected as well as the staffing requirements.

Results & Discussion

The interviews with the CPSC staff and company representatives, review of current practices at regulatory agencies, and development of mathematical models revealed valuable information to assist in improving the notification effectiveness process. We will discuss the results from our studies of the monthly progress report, desired statistical outcomes, firms' requirements, and the recall monitoring unit at the CPSC, the NHTSA, and the FDA.

Monthly Progress Report

This section summarizes the interviews we conducted with the author of the monthly progress report form (MPRF) and seven of the CPSC Compliance Officers (CO) who conduct recall negotiations with firms, as well as the revisions we have proposed to the MPRF. These interviews provided an in-depth examination of the MPRF, the corrective action plan (CAP) negotiation process that occurs between the Commission and a company, and the procedures for how the COs present the form to a company performing a recall.

Form Creator Interview

The creator of the original MPRF stated that the purpose of the MPRF was to gather data that the Commission could use to gauge the overall effectiveness of recall campaigns as well as the effectiveness of specific types of public notification. He also stated that there were no standard definitions developed for the various notification types listed on the form or standard instructions developed for firms to follow in filling out the

form. The lack of definitions allows each company to interpret the form differently. This results in inconsistent data being entered into the database.

Compliance Administration Group Interview

The administration of the Office of Compliance stated that the following statistics should be generated from the MPRF data:

- Overall recall effectiveness
- Effectiveness of particular notification measures
- Number of correspondences received by consumers through different channels
- Number of new incidents arising from the product since the recall

They expressed that the overall recall effectiveness should indicate the percentage of affected products that have been corrected and that the notification effectiveness statistics should indicate the relative correction generation performance of each notification measure. An additional output that the administration stated would be useful was a guide for determining whether to close a particular recall case. They stated that the decision to close a case is currently left to the CO's discretion. The decision to close a case should be supported by historical data. They suggested that a matrix could be generated to relate product retail price, product category, average product age, expected product lifetime, and hazard level to an expected overall recall effectiveness percentage. The administration also made the following suggestions for the overall progress reporting procedures:

- Progress reporting should occur quarterly instead of monthly for all recalls except those addressing Class A hazards.
- In addition to measures undertaken by the company, consumer notification measures undertaken by the Commission should be included in any notification effectiveness calculations.
- When a firm reports a new consumer injury or death in Section V of the current MPRF, an e-mail should be generated to the CO that is handling the recall.
- Sections II and III of the current MPRF should only include the specific notification measures that the firm has agreed to use in the particular recall being reported.
- Total and percentage columns in all sections of the current MPRF should not be included for the firms to fill out as these are automatically calculated by the Commission.

Compliance Officer Interviews

The COs stated that there are three important aspects to a corrective action program:

- appropriate notification methods to reach affected consumers,
- channels for a consumer to reach firms about the recall, such as a toll-free number or website, and
- monthly reports of the current data the company has on the number of affected products with the consumers.

The COs stated that they will follow the first few monthly reports of the recall to ensure that the firm is performing its duty as outlined by the CAP and to check that the CAP is effectively reaching consumers. They also stated that there are no official guidelines for completing these reviews. The lack of specific procedures for reviewing a company's progress in completing a recall indicates that some ineffective recalls may not be discovered until several months after CAP implementation.

The COs stated that they provide the company with the MPRF as an attachment to the CAP Approval letter with little or no explanation aside from a few sentences in the letter stating that it must be completed monthly. One CO said that a more complete explanation would be provided if requested. Three COs believed that it should be distributed earlier because the CAP Approval letter can be sent days or even weeks after the CAP has already been implemented. If the recalling company has never performed a recall before, they will not know what data are requested on the MPRF. Thus, the company may not be able to collect the required consumer awareness data. Two COs stated that to address this issue the MPRF should be mentioned earlier in the recall process and even discussed in the negotiation of the CAP.

All of the COs stated that a case is closed only when a firm requests it, which can be upon the suggestion of a CO. Once a request has been placed, the CO reviews the company's monthly progress reports and decides if the company made adequate attempts to reach the public and if the correction statistics show that the recall has been effective. If it is decided that the company has met these requirements, the case is closed. Once the case is closed, the company no longer is required to report its progress to the CPSC. However, the CAP stays in effect indefinitely to provide for future product corrections.

If after review of the monthly progress reports the CO is not convinced that the recall has produced satisfactory results, he might require a second wave of public notice or other measures before the case can be closed.

Desired Statistical Outcomes

In order to determine the desired statistical outcomes from the MPRF data, we conducted a group interview with five members of the Office of Compliance who are the primary users of recall effectiveness statistics. In addition, we conducted an interview with the Office of Compliance Program Manager who calculates the current notification effectiveness statistics. The result of these interviews was a set of definitions for statistics these administrators could use to accurately gauge the effectiveness of recalls, including the effectiveness of specific notification types.

Program Manager Interview

The Office of Compliance Program Manager stated that the current model for calculating the notification effectiveness statistics was a simple percentage model:

- y: number of notification attempts in a particular notification method reported by firm
- x: number of consumers that reported learning of the recall by this notification method

$$\% \text{ Effectiveness} = \frac{\text{Consumer response}}{\text{Firm attempts}} \times 100\% = \frac{y}{x} \times 100\%$$

Here, the number of consumers who indicated receiving notification of a recall by a particular type of notification is divided by the number of reported attempts for that notification type.

The Program Manager stated that there is an ongoing effort to create a website-based version of the MPRF, but this effort is on hold until our recommendations are completed and reviewed. When presented with our draft statistical models for notification effectiveness, she stated that the reports currently generated from the database could be rewritten to implement our models. Finally, she stated that the Commission's Office of Information Services would be able to provide website hit statistics for press releases placed on the Commission's website.

Recall Effectiveness Statistical Models

On a weekly basis, the Office of Compliance administration meets to discuss current recall cases, recall effectiveness statistics, and recall notification effectiveness. A table titled "Monthly Progress Report Summary of Notification Measures and Consumer Awareness" is compiled for these meetings. Due to sensitivity concerns, a complete copy of this table could not be included in this report, though a partial copy is available in Appendix E. The table has two subsets labeled "Period" and "Total." Any following mention of this table refers to the "Period" subset, which contains MPRF data from the current calendar month. This table details, for each notification method listed, the number of attempts made by the firm and the number of consumers that learned of the recall. The values entered in the "Firm Notification Attempted" column are a summation of values entered for a particular notification method in Section II of the current monthly progress report forms that companies submitted in the previous month. The values entered in the "Consumer Awareness" column are a summation of values entered for a particular notification method in Section III of the MPRFs that companies submitted in the previous month. For each notification method, a percentage is calculated that is

intended to indicate the effectiveness of that method. Currently, the effectiveness of a notification method is defined as the percentage of notification attempts that resulted in product corrections. The mathematical definition of the current notification effectiveness statistic and a numeric example are given below. The example uses information pertaining to direct mailings.

y: Firm Notification Attempted - # direct mail letters
firm sent to owners of recalled product (9,285,981)

x: Consumer Awareness - # consumers who are responding
to recall because of the direct mail letter
(2,102,351)

$$\% \text{ Effectiveness} = \frac{\# \text{ consumers}}{\# \text{ letters}} \times 100\% = \frac{y}{x} \times 100\%$$

$$\% \text{ Effectiveness} = \frac{2,102,351}{9,285,981} \times 100\% \approx 22.64\%$$

From these calculations, the Commission concludes that 22.64 percent of direct letters mailed to consumers for the recalls included in this report resulted in consumers contacting the firm about the recall. The model does not hold when applied to other notification types. The following example is for the "Television" notification type:

y: Firm Notification Attempted - # people reached by
television advertisements (153,318,435)

x: Consumer Awareness - # consumers who are responding
to recall because of a television advertisement
(268,977)

$$\% \text{ Effectiveness} = \frac{\# \text{ consumers}}{\# \text{ advertisements seen}} \times 100\% = \frac{x}{y} \times 100\%$$

$$\% \text{ Effectiveness} = \frac{268,977}{153,318,435} \times 100\% \approx 0.18\%$$

From these calculations, the Commission concludes that 0.18 percent of television notifications result in consumers contacting the recalling company about the recall.

In the calculations for television notification effectiveness discussed above, an important component of the nature of television advertising has been overlooked. The data entered in Section II of the monthly progress report for television and other media outlets are recorded as the circulation of the advertisement or release, in other words, the numbers entered here represent the approximate number of unique United States residents who have seen the advertisement. This circulation data includes consumers who *are* owners of the recalled product in addition to others who *are not* owners of the recalled product. If a particular individual does not own the product affected by a recall, then he need not contact the company to have an affected product corrected. It is important to consider only the advertisement impressions on owners of the recalled product in calculating effectiveness.

We propose the notion of an owner-impression, defined as one owner of a recalled product receiving notification of a recall by a particular notification method. In the case of direct methods of consumer notice such as letters, phone calls, or e-mails to registered product owners, the number of owner-impressions is equal to the number of letters, phone calls, or e-mails distributed. For media notifications such as television, newspaper, or magazine advertisements, the number of owner-impressions is generally far fewer than the number of generic impressions achieved by the advertising campaign.

An estimate for the number of owner-impressions for a media advertisement can be calculated as follows:

x: number of generic advertisement impressions
(includes owners and non-owners of recalled product); provided by MPRF

n: number of recalled products in possession of consumers; provided by firm at beginning of CAP negotiation process

P: population of United States; use latest census calculations

y: number of owner-impressions from notification method; goal of calculations

$\frac{x}{P}$: proportion of people who saw advertisement out of the entire U.S. population

$\frac{y}{n}$: proportion of people who responded to recall because of this notification type out of all the people who own the recalled product

assume the two proportions are equal ($\frac{x}{P} = \frac{y}{n}$) and

solve for y

$$y = \left(\frac{n}{P} \right) x : \text{end result}$$

The final equation relates the number of owner-impressions generated by a media advertisement to the number of generic advertisement impressions, the number of recalled products in consumer possession, and the population of the U.S. The recall notification effectiveness statistic equations now use the calculation of owner-impressions.

y: number of owner-impressions from notification method; calculated by models shown above

x: number of consumers who reported learning of the recall by notification method; reported by firm on the MPRF

$$\% \text{ Effectiveness} = \frac{\# \text{ consumer responses}}{\# \text{ owner - impressions}} = \frac{x}{y} \times 100\%$$

The effectiveness percentage for both direct and media notification methods are now directly comparable to one another.

The media model for owner-impressions depends directly on the quality of the underlying circulation data for the particular media being studied. When the number of affected products is large or when the hazard presented by the product is severe, a CAP will include several types of notification that could be found in the same media type. For example, some recalls include a video news release (VNR), a press release, and paid television advertisements. All three of these notification types could result in consumers indicating they were notified about the recall through a message on television. The VNR and paid advertisement are designed to be shown on television, and a television media

outlet such as CNN Headline News could cover the press release. The impression figures used in the calculation of television owner-impressions must include the impression data for all three of these notification types.

A possible source of error in our media owner-impressions model is the assumption that the number of affected consumers is equal to the number of affected products. For example, a single person may purchase two lighting fixtures for different rooms in their home. If the two units are the same model and are recalled, then the one consumer would return both to the manufacturer. In this case, the number of affected consumers is not exactly equal to the number of affected products. The number of affected consumers differs from the number of affected products by some factor, which we will call A:

c: number of consumers owning products affected by a recall

n: number of products affected by same recall

A: factor relating number of recalled products to the number of consumers affected by the recall

$$c = An$$

In the above equation, c represents the number of consumers affected by a recall and n represents the number of products affected by the recall. The equation can be rearranged to isolate the factor A:

$$A = \frac{c}{n}$$

This equation shows that the value of A can be determined if the values of c and n are known. One method for determining a better estimate for the real value of A would be to determine historical values of c and n from past monthly progress reports:

N: number of recalls to be used in study; dependent on availability of historical data

A: factor relating number of recalled products to number of consumers owning recalled products; goal of calculations

c_i : number of consumers owning products recalled by the i^{th} (of N) recall

n_i : number of products recalled by the i^{th} (of N) recall

$C_{hist} = \sum_{i=1}^N c_i$: summation of number of consumers owning products recalled by the N recalls

$n_{hist} = \sum_{i=1}^N n_i$: summation of number of products recalled by the N recalls

$A = \frac{C_{hist}}{n_{hist}}$: end result

Affected consumer data available from past monthly progress reports is suspect because of the lack of definitions for Section III of the current monthly progress report. This data cannot be used to calculate a current value for A. If the new MPRF we recommend is used, then the number of consumers affected by a recall will be available. Once the new

progress report had been utilized in a number of recalls, the data collected by them could be used to calculate a value for A.

The mathematical model that we have proposed for the generation of owner-impressions from generic, media-based advertising impressions is only applicable to recalls with some tight restrictions placed on the distribution of both the product involved and the advertisement. The current model can only be applied in the case of untargeted nationwide distribution of both product and advertisement. In order to adapt the model for application to a specific geographic region of the United States, the population of that region must be used in place of the population of the United States. Adapting the model to include the effects of targeted advertising is an even more daunting challenge. In these cases, the proportion of affected consumers to members of the general population will need to be estimated accurately. The application of additional marketing theory is essential to the further development of this model.

Direct notification methods include letters, phone calls, and e-mails to registered owners of an affected product. Media notification methods include television, newspaper, radio, and magazine advertisements; websites; and flyers distributed with utility bills. In addition to these notification methods, posters are often placed in retail stores and pediatricians' offices to advertise a recall as well. We were unable to find a reliable method for determining the number of people who see a poster in a general sense. There may be studies of poster impression generation in specific situations, such as posters in a particular retail store. These studies are likely to be proprietary and could not be applied outside of the specific circumstances that they were designed to describe. In addition, posters are not direct notifications because each poster has the potential to reach

multiple consumers. Without a method for determining the number of owner-impressions generated by a poster notification campaign, the effectiveness of the campaign cannot be compared to the effectiveness of direct or media notification campaigns.

Companies' Requirements

We interviewed company representatives to assess firm behaviors and opinions concerning the MPRF and potential future developments for the MPRF.

Company Interviews

We interviewed the representatives of seventeen firms, all of whom had conducted at least one recall in the past, though most had conducted more than one. The coded data from these interviews is available in Appendix J.

Twelve firms received the MPRF with the CAP Approval letter after the negotiation of the CAP was complete and it had been implemented. Sixteen of the firms stated that they were not given any kind of explanation of the data collection requirements during the negotiation phase of their recall. The fact that no explanation was given to most firms coupled with the fact that the companies received the form very late in the recall process contributed to the inconsistent data gathered by the MPRF.

Five firms agreed that the MPRF should be discussed in the CAP negotiation, and one other firm agreed it should be in the negotiations if changes were made since the company last received the form. Nine firms stated that they did not believe it necessary to include a discussion of the MPRF in negotiations. Including the MPRF in CAP negotiations would allow the CO to clearly explain each section on the form and the data

it requests. This would also give the firms ample time to prepare tools to collect this data. Nine of the firms felt that the form was clear and easy to fill out. However, there were many inconsistencies in the definitions applied to the form by the firms and the data collected by them. Eleven of the firms started collecting the data required by the MPRF as soon as the CAP was implemented, which was before they initially received the MPRF. A benefit of including the MPRF in the CAP negotiations would be that all firms would know what data needs to be collected for the form with sufficient time to prepare for collecting it.

All of the firms stated that they had never been given any definition of the terms and fields that appear on the monthly progress report. When asked how they record the number of notification attempts for television, radio, magazine, and other media fields in Section II of the report, five of the firms recorded them as the number of individual ad campaigns run by the firm, and one of the firms included campaigns not specifically run by them. For example, they included the fact that their recall appeared on a Canadian website dedicated to recalls, the CPSC's website, and another website dedicated to informing consumers about recalls. Three firms recorded the number of people reached by the campaigns that were conducted. Representatives of five of the firms could not recall how they recorded these numbers. Sixteen of the firms stated that the structure of the form was orderly. Three of the firms had contacted the CPSC and requested clarification regarding the data they needed to enter on the progress report. Two firms had been contacted by the CPSC to address the data entered on the MPRF. Nine of the seventeen firms had conducted paid advertisement campaigns during their recalls. Of these, five firms had collected impression data and four firms had not.

Many of the firms expressed some benefits that they would like to see from completing the progress reports. It is no small task for the firms to accurately collect the data the CPSC wants, and any benefits the CPSC can provide the firms will only give the firms more motivation to complete the forms. Eleven firms expressed that statistics identifying the most effective methods of notification for certain product types would be useful. One also noted that a public report of effectiveness data would be helpful. Two firms mentioned that a guideline could be developed that would give an expected return rate for a recall based on characteristics such as product type, price, expected lifespan, and age. Four firms said the form is a good summary of the recall measures performed to provide management with a justification of the measures taken to conduct the recall. One firm said that the number of consumers reached through advertising measures, not just the number of products returned, should be considered when deciding to close a case. One firm also stated that the final effectiveness statistics should be included in documentation sent to a company when the CPSC approves or denies a case closure. Three of the firms stated that they would derive no benefit from the data collected from these forms.

Recall Monitoring Unit

This section presents the results from our interviews concerning the recall monitoring units at the CPSC, the NHTSA, and the FDA. We describe the personnel requirements and job responsibilities for each position at each of these agencies.

Consumer Product Safety Commission

The Commission employs one person in its recall monitoring unit. This employee's responsibilities are to collect monthly progress reports and enter data from these reports into a database, generate case closure requests, archive files from closed cases and field checks, and assign recall checks to field offices. A college degree and work experience are required for this position.

The Program Manager in the Office of Compliance is not part of the recall monitoring unit but is responsible for data analysis and evaluation and for providing recall effectiveness reports to senior managers. A college degree is required for this position.

National Highway Traffic and Safety Administration

The National Highway Traffic Safety Administration (NHTSA) employs one person in its recall monitoring unit. This person's job responsibilities are to enter quarterly progress reports from companies conducting product recalls into a database and to prepare summary reports from that database. A college degree and work experience are essential for this position. The data reported to the Administration are specified in 49 CFR 573 and are summarized below:

- Notification campaign number assigned by NHTSA
- Date notification began and was completed
- Number of affected vehicles or items of equipment
- Number of vehicles/equipment items inspected and:
 - Repaired
 - Determined not to need repair

- Number of vehicles/equipment items determined to be unreachable due to:
 - Export
 - Theft
 - Scrapping
 - Failure to receive notification
 - Other reasons

- Number of equipment items repaired and/or returned by dealers and distributors prior to first public sale

49 CFR 573 requires a manufacturer that is recalling a product to report quarterly the above data as a set of cumulative statistics to the Administration. The Administration does not issue a standard form to recalling companies to collect this information; recalling companies submit the data according to the specifications in 49 CFR 573. The summary report consists of the quarterly data and the overall percentage of products returned to the manufacturer or repaired. This correction percentage is calculated as the ratio of the number of total products corrected or repaired to the number of recalled products. The data entry person at the Administration stated that there are approximately 800 open recall cases at any one time.

Food and Drug Administration

The Food and Drug Administration (FDA) currently has no equivalent office to the CPSC's recall monitoring unit. The FDA monitors recalls through their regional offices that conduct audits on firms carrying out a recall. The audits are designed to ensure that a firm is conducting the proper measures to accomplish the recall of the product. Due to the nature of the product areas over which the FDA has authority, many

recalled products have already been used or are thrown away by consumers. For example, a food product found to contain harmful bacteria is never returned to the recalling firm but rather is destroyed in the field. Therefore, the FDA does not seek return rates as means of gauging the effectiveness of a recall but rather wants to see the affected product removed from the market and consumer possession.

The FDA instituted a new database for closed case reports on November 15, 2002. This database currently has little information and is meant to complement the existing hardcopy files of the closed case reports. Once there is sufficient data in the database, the FDA will be able to produce statistical information regarding recall success rates.

Recommendations

We make recommendations to the Commission regarding the monthly recall progress reporting process and for future research opportunities that we discovered during our project. The following conclusions draw upon information presented in the Results and Discussion chapter.

Monthly Progress Report Form

The interviews conducted with company representatives and Compliance Officers (CO) revealed that the monthly progress report form (MPRF) is neither clear nor adequately defined for the companies. The companies have previously depended on CPSC staff to define the sections on the form or the companies defined the sections themselves. No formal definitions or instructions for the form were ever created; these definitions varied from company to company. Therefore, data taken from the monthly progress reports and compiled in the database presents inaccurate statistics on recall effectiveness.

Revised Form

- **We recommend that the Commission revise the MPRF**

We have created a new version of the form, which is available in Appendix F. The Commission should provide companies with a full explanation of the data requested on the form. This will reduce the inconsistencies present in the data currently being collected. More consistent data will allow the Commission to accurately gauge the effectiveness of recall programs and of individual notification measures.

- **We recommend that the Commission complete a formal study of any revision of the MPRF**

Formal testing of a revised form will ensure that it will be understood by the companies that will be completing it and that the companies are correctly reporting the desired information. Due to time constraints, we have not applied any formal testing to the new MPRF that we have proposed to the Commission. Any study that is undertaken must have an appropriate sample selected from the population of new recalls. The sample selected should represent the full spectrum of companies and products that could potentially be the subject of a recall. For example, the sample should include both companies that have never performed a recall and companies that have conducted several recalls using the old progress report. The CO and the company involved in each recall should schedule follow-up correspondence to assess whether the company was able to complete the form correctly and without confusion. If the results of this study indicate that the new form is understandable, the application of the new form could be expanded to cover all new recalls and the use of the old form could be phased out.

The Commission should plan a study to assess the ability of the new form to improve the notification effectiveness statistics. The study should compare a treatment group of companies that use the new MPRF with a control group of companies that use the current MPRF. The usability of the statistics generated by each group of forms should be compared. This will ensure that the data collected from the new form allows the Commission to calculate more appropriate recall notification effectiveness statistics.

Form Implementation

- **We recommend that the Commission distribute the MPRF to companies at the beginning of each corrective action plan (CAP) negotiation process**

A copy of the form along with instructions and definitions should be included in the full report request packet, which is sent at the beginning of the CAP negotiation process. This will enable the firm to deploy appropriate tools to collect the required data. The CO handling the case should ensure that the questions needed to collect data for the form are included in these channels. Our results show that the majority of companies performing a recall do not receive the monthly progress report form until after the CAP has been implemented. This is too late for a company that is inexperienced with the recall process. The firm may not collect the required information from the consumer if they do not know what data needs to be collected.

- **We recommend that the Commission distribute a customized monthly progress report form with the CAP Approval letter**

Section II of the customized form should only include the notification measures that are included in the negotiated CAP. Many of the firms expressed that including all the notification measures on the form is confusing and makes it appear that they should be conducting notifications in each of the areas. Customizing this section will remove this confusion as well as make the form clearer and easier to understand, further reducing the inconsistencies present in the database.

Recall Effectiveness Statistical Models

- **We recommend that the CPSC continue development of recall effectiveness statistics models**

The Commission should use the effectiveness statistics models that we have developed as a guide for future development in this area. The model that we have proposed for direct notification types is exactly equivalent to the current model. The model proposed for media notification types is too generalized to be applied directly to all recalls. This model must be customized for the particular application being considered. Therefore, the Commission should focus future research on refining this model for specific applications.

- **We recommend that the Commission develop a model for calculating owner-impressions generated by poster notifications**

Poster notifications must be handled separately and their effectiveness ratios can only be compared against other poster types. The simple percentage model that is currently in use should continue to be applied. However, the Commission should refrain from comparing the effectiveness ratios calculated for poster notifications with those calculated using our direct and media models of notification. Without a mathematical statement for the generation of owner-impressions by posters, effectiveness statistics calculated for poster notifications will be incomparable to statistics calculated by the models for direct and media notifications. Poster notification effectiveness statistics can be compared directly to direct and media notification effectiveness statistics only after a model for the generation of owner-impressions by poster notifications is developed.

Recall Monitoring Unit

- **We recommend no changes to the Recall Monitoring Unit or the Program Manager positions in the Office of Compliance**

The FDA has no equivalent office to the CPSC's recall monitoring unit and has different benchmarks for determining the effectiveness of a recall. Therefore, comparing the CPSC to the FDA in these areas is not possible. The NHTSA does have a position similar to the recall monitoring unit in its structure. However, the NHTSA data collection processes are sufficiently different from those at the CPSC to invalidate any staffing comparison.

Recommendations for Future Research

The following are areas of potential future research that we believe should be examined.

Web Based Form

- **We recommend that the CPSC design and implement an Internet-based monthly progress reporting tool for companies conducting recalls**

The Commission has already begun research into the creation of an Internet-based version of the MPRF. It is our opinion that advances in Internet technology would allow the Commission to streamline their monthly progress data collection processes and automate many of the data entry tasks for companies that would prefer the Internet-based form over the paper form. Electronic submission of monthly progress reports would allow for statistics to be available as soon as they were entered by the recalling company.

Guidelines for Recall Case Closure

- **We recommend that the Commission develop a set of guidelines that would relate the consumer correction rate for a particular recall to the values of several variables**

The senior management of the Office of Compliance has indicated interest in the development of a tool for determining whether a particular recall case should be closed. They note that the expected consumer correction rate for a recall appears to depend on several variables including original product retail price, product category, expected product lifetime, average age of the product population, and hazard classification. Currently the determination of case closure is left to the Compliance Officers' discretion. These guidelines could take the form of a multi-dimensional matrix generated from historical data in the database. This tool would allow the Commission to provide a statistical justification of a closure decision to a firm. In addition, this tool could be used to determine if a recalling company should undertake additional measures to improve the consumer correction rate.

Application of Recall Notification Statistics to Improve Recalls

- **We recommend that the Commission examine how to apply recall notification effectiveness statistics to improve the overall recall process**

Once accurate measures of recall notification effectiveness have been developed and implemented, the statistics generated should be applied to improve the recall process. Recall notification effectiveness statistics will indicate which types of notification are most effective in generating consumer corrections of recalled products. These statistics should be considered by the Compliance Officers when negotiating new recall actions

with companies. This will minimize the burden on the recalling company while serving the public by ensuring that recalls are as effective as possible and reach as many consumers as possible.

Social Implications

We have developed a method for measuring the effectiveness of public recall notifications. Up to this point in our report, we have dealt with the specific aspects of the implementation of this method, such as the statistical modeling of public notifications, revision of the monthly progress report, and the process by which the modeling and progress report are implemented. Let us examine the potential ramifications of applying these measurements to the greater social problem of consumer product related injuries and deaths. These projections represent a potential outcome if our recommendations are implemented. They do not represent any currently available data, with the exception of the costs associated with consumer product related injuries and deaths.

Imagine that a fictional company called XYZ Corporation has distributed a product with a hazard that poses a serious risk to consumers. A consumer who uses that product is exposed to a five percent chance per year of injury due to the defect. One of every 1,000,000 consumers who use the product for one year will be killed by the defect. There are 30,000 of these products in the possession of consumers, and the product has an expected lifetime of five years. If the product is not recalled, we can estimate that 1.5 deaths and 7,500 injuries will occur over the expected lifetime of these products. The current overall recall correction rate is fourteen percent. Therefore, we can estimate that 4,200 of the defective products would be returned for correction if the product were recalled today. The recall action would prevent some 1,050 injuries and 0.21 deaths. It would save the public \$15,272,250 in medical costs, work loss, pain and suffering, and product liability costs. In the negotiation of the corrective action plan for the recall, XYZ offers to issue a press release, advertise on national television, and mail recall

notifications to consumers who had registered their products with the company.

However, the Commission's notification effectiveness data gathered from past monthly progress reports indicates that national television advertisements were largely ineffective at generating consumer awareness of recalls for this product type. The statistics indicate that a national television advertisement that generates 100,000 owner-impressions will result in only 1,000 products being returned for correction. Historical data indicates that a magazine advertisement that generates 100,000 owner-impressions will result in 1,420 products being returned for correction. The Compliance Officer handling the case negotiates for the magazine advertisement to replace the television campaign. As a result, an additional 420 products are returned to XYZ for correction, bringing the total product corrections for the recall to 4,620. Those additional product corrections would result in the prevention of an additional 105 consumer injuries and 0.021 deaths over the lifetime of the product. Preventing those incidents would represent an additional societal savings of \$1,527,225. All defects do not pose this severity of hazard to consumers. The Commission currently oversees about 350 recalls in a typical year. If each of these recalls exhibited on average fifty percent of the savings realized by the above example, the total savings would be about \$314 million in current U.S. dollars each year.

In 1995, consumer products were associated with 29.9 million injuries and 22,000 deaths. They represented a total societal cost of \$513 billion in 1995 U.S. dollars (Miller et al, 2000). In 2001, consumer products were associated with 34.3 million injuries. Consumer products were associated with 24,800 deaths in 1999. Those injuries and deaths cost the public \$689 billion in current U.S. dollars. If the application of our recommendations results in a reduction of consumer product related deaths and injuries

of just 0.1 percent, our project would create a societal savings of about \$690 million per year.

The Commission's revised injury cost model (ICM) reports societal costs of injuries in four categories:

- Medical costs
- Work losses
- Quality of life and pain and suffering costs
- Product liability, insurance administration, and litigation costs

The ICM is an estimate and does not represent the exact cost of product related injuries. Most notably, the ICM does not include the costs of mental health treatment for injury victims and their families. The actual societal cost of these injuries may be much higher than the estimates given in the previous paragraph.

This report has outlined a method for measuring the relative effectiveness of direct and media recall notifications. The application of this information could result in an increase in the number of recalled products that are returned for correction. Removing these products from the market will prevent injuries and the societal costs associated with them.

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Appendix A – Consumer Product Safety Commission

Consumer Product Safety Commission

The CPSC is an Independent Federal Regulatory Agency that was created in 1972 by the passage of the Consumer Product Safety Act, and began operation the next year. Being an Independent Federal Regulatory Agency, they are not part of, nor do they report to any other government departments or agencies. They work to keep people safe by reducing the risk of injuries and deaths associated with consumer products by:

- developing voluntary standards with industry;
- issuing and enforcing mandatory standards or banning consumer products if no feasible standard would adequately protect the public;
- obtaining the recall of products or arranging for their repair;
- conducting research on potential product hazards; and
- informing and educating consumers through the media, state and local governments, private organizations, and by responding to consumer inquiries.

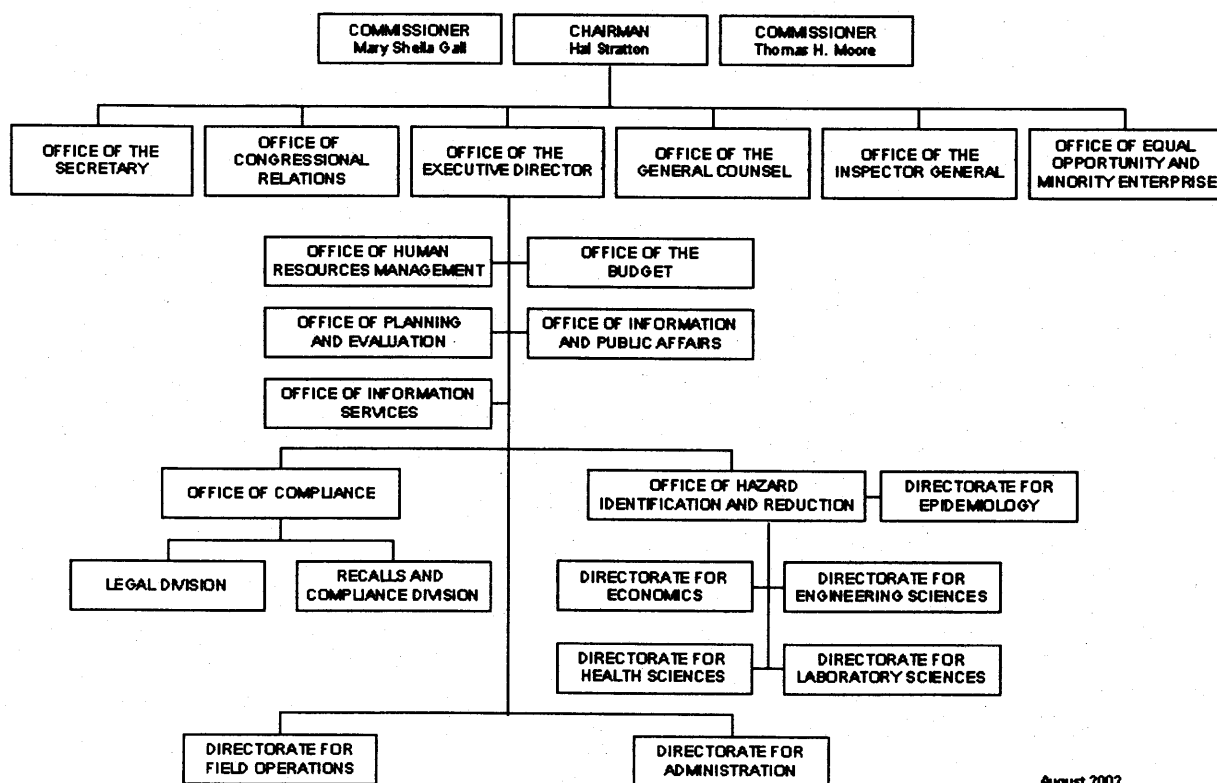
The CPSC has jurisdiction over more than 15,000 types of products. The types of products that they do not have jurisdiction over include automobiles and other on-road vehicles, tires, boats, alcohol, tobacco, firearms, food, drugs, cosmetics, pesticides, and medical devices.

The Commission has an annual budget of roughly \$52.4 million, and employs over 480 people. There are three commissioners who head the agency; they are appointed by the President and approved by the Senate for staggered seven-year terms.

The President appoints one of these commissioners as Chairman of the Commission. The six offices of Congressional Affairs, Equal Employment and Minority Enterprise, General Counsel, Inspector General, Secretary, and Executive Director report directly to the Chairman. The Executive Director oversees Commission policy and administration. Six offices, which implement the policy and administration, report to the Executive Director. They include the offices of Compliance, Hazard Identification and Reduction, Field Operations, Administration, Budget, Human Resources, Information and Public Affairs, Information Services, and Planning and Evaluation.

Our sponsor is the Office of Compliance. They act as liaisons to the manufacturers discussing their product recall statistics.

Organization Chart



Appendix B – WPI IQP Qualification

The Interactive Qualifying Project (IQP) challenges students to identify, investigate, and report on a topic examining how science or technology interacts with societal structures and values. The objective of the IQP is to enable WPI graduates to understand, as citizens and as professionals, how their careers will affect the larger society of which they are a part (<http://www.wpi.edu/Academics/Projects/intro.html>, October 1, 2002).

In our project, we identified the problems with notification data collection and analysis for product recalls. This required us to investigate the current data collection techniques used by the Consumer Product Safety Commission (CPSC) and firms who have conducted recalls. We identified problems associated with those methods and suggested resolutions for them. We also compiled a detailed report of these findings for the CPSC and WPI.

Our project is related to science and technology through the study of data collection processes. Our goal was to determine whether the currently used techniques are the most appropriate for the problem at hand and whether there exist any new techniques that could improve the process. The impact of our analysis tied our project to societal structures and values. Products are recalled because they potentially could be associated with consumer injuries and deaths. Therefore, data describing recall notification effectiveness is very important to preventing the societal costs associated with consumer product related injuries and deaths. This is in accordance with the CPSC's mission of keeping people safe from dangerous consumer products.

Appendix C - Literature Synopsis and Critique

The Commission requested a summary of each non-government source cited in the rest of this document as well as a statement about the authors of those sources. This is intended to give the reader an overview of the content of each source as well as the motivations of the author for writing each source.

Everything (almost everything) you always wanted to know about product recalls (Divita, S. F., 1983)

The three objectives of this report are to provide an overview of the present recall process, review the Consumer Product Safety Commission, and to prepare a guide for effective recalls. The guide for effective recalls is meant to help companies structure their recall programs. Detailed descriptions of each step of the product recall process and potential problems are included in the report. Notice dissemination, consumer response, and corporate preparedness are all discussed in detail.

Salvatore F. Divita is Chair of the Marketing department at George Washington University. Dr. Divita received his Doctorate of Business Administration from Harvard Business School, Masters of Business Administration from Ohio State University and Bachelor of Industrial Engineering from New York University. He serves on several boards, is active in the American Marketing Association, and is frequent speaker before professional and business groups. He has contributed to several books, edited proceedings of the AMA, and has published extensively (http://www.sbpn.gwu.edu/emba/Divita_bio.htm, October 24, 2002).

Public relations considerations of consumer product recalls (Gibson, D. C. 1995)

This article is about the public relations considerations that are pertinent to companies involved in a product recall. The piece briefly discusses the probability of a firm having a product recalled. For instance, the large number of recalls that are instituted in the country mean that most manufacturers and many consumers will likely have a recall affect them. Recalls affect the public image of companies and change the lives of consumers. The article discusses the difficulty of measuring and reporting the effectiveness of a recall. The article touches on the reasons for producing favorable recall outcomes; for example, communication, consumer perceptions, and warning saturation. The author also gives a list of potential solutions to the problems facing recalls.

Gibson now teaches in the Communication and Journalism department at the University of New Mexico. He received his Ph.D. from Indiana University in 1983. Nationally renowned for his product recall work, he has established a typology of U.S. products recalled and the incidence of such recalls for each year since 1985. He is well published in the area of product recalls, and has initiated the UNM chapter of the American Advertising Federation (<http://www.unm.edu/~cjdept/department/faculty.html>, October 24, 2002).

Risk avoidance and product recall preparedness in the consumer products industry (Harrington, E. & Kamlet, K. S., 1989)

This article describes a study performed by A.T. Kearney to assess companies' preparedness with regard to recalls. The study investigates the motivations for

companies to conduct recalls in addition to detailing thirteen steps that companies can take to improve preparedness. Kearney also developed a four level model to categorize the preparedness of a company to conduct a recall.

Product recalls: a remedy in need of repair (Schwartz, T. M. & Adler, R. S., 1983)

This article suggests that the three main agencies with the power to recall become more unified in their procedures and dealings with the public. Also, Schwartz and Adler suggest that there needs to be a differentiation between high and low risk recalls and there should be some middle ground between leaving a product on the marketplace and conducting a full scale recall. They stress that voluntary agreements are good to achieve prompt recalls, but agencies must be willing to use enforcement powers when voluntary powers fail.

Schwartz is a professor of law at George Washington University in Washington, DC. She graduated first in her class at the Law School of George Washington University. She has written numerous articles in the areas of product liability and safety regulation. From 1995 to 1997, and from 1998 to 2001, she served as the deputy director of the Federal Trade Commission's Bureau of Consumer Protection (http://www.law.gwu.edu/fac/faculty.asp?pkey_f=119, October 24, 2002).

Adler is a Professor of Management at the Kenan-Flagler Business School of the University of North Carolina at Chapel Hill. He is very involved in the legal and ethical issues surrounding consumer protection including consumer law, medical malpractice, and product liability. He has served on the board of directors of the Consumers Union, as the attorney-adviser of the CPSC, and as deputy attorney general of the Pennsylvania

Justice Department (<http://www.kenanflagler.unc.edu/faculty/directory/16.html>, October 24, 2002).

Appendix D – Current Corrective Action Plan Monthly Progress Report

Monthly Progress Report for Corrective Action Plan & Incident Update

CASE #: _____ Compliance Officer: _____
 Company Name: _____ Product: _____
 Reporting Dates, From: _____ To: _____ Total# of Affected Products: _____

I) PRODUCTS CORRECTED/CAPTURED BY YOUR FIRM:

Location of Products	Total Products	Corrections This Period	Total Corrections	Percent Corrected
With Manufacturer	_____	_____	_____	_____
With Distributor	_____	_____	_____	_____
With Retailers	_____	_____	_____	_____
With Consumers	_____	_____	_____	_____
TOTAL:	_____	_____	_____	_____

II) NOTIFICATION MEASURES:

(Using the categories listed below, records the numbers of notifications attempted by your firm during this reporting period, and records the total number of notifications to date.)

	Number for This Reporting Period	Total
Billing Insert	_____	_____
Direct Mail Letter	_____	_____
Magazine	_____	_____
Newspaper	_____	_____
Pediatrician Poster	_____	_____
Phone Call	_____	_____
Product Catalog	_____	_____
Radio	_____	_____
Retail Store Poster	_____	_____
Television	_____	_____
Web Site	_____	_____
Post Office	_____	_____
Thrift Store	_____	_____
Other	_____	_____

III) CONSUMER AWARENESS: (Using the categories below, record the way, by numerical quantity, Consumers told you they learned of the corrective action, i.e. consumer received direct mail, read magazine, etc.)

	Number for This Reporting Period	Total
Billing Insert	_____	_____
Direct Mail Letter	_____	_____
Magazine	_____	_____
Newspaper	_____	_____
Pediatrician Poster	_____	_____
Phone Call	_____	_____
Product Catalog	_____	_____
Radio	_____	_____
Retail Store Poster	_____	_____
Television	_____	_____
Web Site	_____	_____
Post Office	_____	_____
Thrift Store	_____	_____
Other	_____	_____

IV) Calls to 800 Number/Correspondence

	# From Customers This Reporting Period	Total
800 Number	_____	_____
E-mail	_____	_____
Written Requests	_____	_____

V) Incident Update:

	# For This Reporting Period	Total
# Incidents	_____	_____
# Injuries	_____	_____
# Deaths	_____	_____

NOTE: Submit completed form by the FIRST of EACH MONTH to Judy Smith, Recall Coordinator, at:
 United States Consumer Product Safety Commission, Office of Compliance
 4330 East West Highway, Room 613 Bethesda, MD 20814
 OR, fax report to (301) 504-0359 or e-mail to jsmith@cpsc.gov. Address any questions to Ms. Smith at 301- 504-0608 # 1377

Appendix E – Monthly Progress Report Summary

Monthly Progress Report Summary of Notification Measures and Consumer Awareness

Period

Method Category	Firm Notification Attempted	Consumer Awareness	Percent Effectiveness
Billing Insert			
Direct Mail Letter	9,285,981	2,102,351	22.64%
Magazine			
Newspaper			
Other/Unknown			
Pediatrician Poster			
Phone Call			
Post Office			
Product Catalog			
Radio			
Retail Store Poster			
Television	153,318,435	268,977	0.18%
Thrift Store			
Video News Release			
Web Site			

Total

Method Category	Firm Notification Attempted	Consumer Awareness	Percent Effectiveness
Billing Insert			
Direct Mail Letter			
Magazine			
Newspaper			
Other/Unknown			
Pediatrician Poster			
Phone Call			
Post Office			
Product Catalog			
Radio			
Retail Store Poster			
Television			
Thrift Store			
Video News Release			
Web Site			

Appendix F – Revised Monthly Progress Report

Monthly Progress Report for Corrective Action Plan & Incident Update

CASE #: Company Name: Reporting Dates: ___/___/___ To: ___/___/___	Compliance Officer: Product: Suggested Retail Price: E-mail:																																																																						
For each section below, enter the number for this reporting period only																																																																							
I) PRODUCTS CORRECTED/CAPTURED: <table style="width:100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Location of Products</th> <th style="text-align: center;">Total Products</th> <th style="text-align: center;">Corrections This Period</th> </tr> <tr> <td>With Manufacturer</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>With Distributor</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>With Retailers</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>With Consumers</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Total</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> </table>	Location of Products	Total Products	Corrections This Period	With Manufacturer	_____	_____	With Distributor	_____	_____	With Retailers	_____	_____	With Consumers	_____	_____	Total	_____	_____	Address any questions to your Compliance Officer. Submit completed form by the FIRST of EACH MONTH to: Judy Smith, Recall Coordinator U.S. Consumer Product Safety Commission, Office of Compliance 4330 East West Highway, Room 613 Bethesda, MD 20814 OR, fax report to (301) 504-0359 or e-mail to jsmith@cpsc.gov.																																																				
Location of Products	Total Products	Corrections This Period																																																																					
With Manufacturer	_____	_____																																																																					
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With Retailers	_____	_____																																																																					
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Total	_____	_____																																																																					
II) NOTIFICATION MEASURES: (Only indicate notifications paid for or performed by <u>your</u> firm) <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"># Distributed</td> </tr> <tr> <td>Direct Mail Letter</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Direct E-mail</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Direct Phone Call</td> <td style="text-align: center;">_____</td> </tr> <tr> <td></td> <td style="text-align: center;"># People (Heard or saw ad at least once)</td> </tr> <tr> <td>Billing Insert</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Magazine</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Newspaper</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Radio</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Television</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Website</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Video News Release</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Product Catalog</td> <td style="text-align: center;">_____</td> </tr> <tr> <td></td> <td style="text-align: center;"># New Posters Distributed</td> </tr> <tr> <td>Pediatrician Poster</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Retail Store Poster</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Post Office Poster</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Thrift Store Poster</td> <td style="text-align: center;">_____</td> </tr> </table>		# Distributed	Direct Mail Letter	_____	Direct E-mail	_____	Direct Phone Call	_____		# People (Heard or saw ad at least once)	Billing Insert	_____	Magazine	_____	Newspaper	_____	Radio	_____	Television	_____	Website	_____	Video News Release	_____	Product Catalog	_____		# New Posters Distributed	Pediatrician Poster	_____	Retail Store Poster	_____	Post Office Poster	_____	Thrift Store Poster	_____	III) CONSUMER AWARENESS: (Record the way consumers learned of the corrective action) <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"># Consumers</td> </tr> <tr> <td>Direct Mail Letter</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Direct E-mail</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Direct Phone Call</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Billing Insert</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Magazine</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Newspaper</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Radio</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Television</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Website</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Product Catalog</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Pediatrician Poster</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Retail Store Poster</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Post Office</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Thrift Store</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Unknown</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Other _____</td> <td style="text-align: center;">_____</td> </tr> </table>		# Consumers	Direct Mail Letter	_____	Direct E-mail	_____	Direct Phone Call	_____	Billing Insert	_____	Magazine	_____	Newspaper	_____	Radio	_____	Television	_____	Website	_____	Product Catalog	_____	Pediatrician Poster	_____	Retail Store Poster	_____	Post Office	_____	Thrift Store	_____	Unknown	_____	Other _____	_____
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Other _____	_____																																																																						
IV) CONSUMER INQUIRIES: (Enter correspondences concerning the recall) <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"># Inquiries</td> </tr> <tr> <td>Toll-Free Number Calls</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>E-mail Inquiries</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Written Inquiries</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Website Inquiries</td> <td style="text-align: center;">_____</td> </tr> </table>		# Inquiries	Toll-Free Number Calls	_____	E-mail Inquiries	_____	Written Inquiries	_____	Website Inquiries	_____	V) INCIDENT UPDATE**: (Enter number of product failures due to recall defect) <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"># Occurrences</td> </tr> <tr> <td>Injuries</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Deaths</td> <td style="text-align: center;">_____</td> </tr> <tr> <td>Total Incidents*</td> <td style="text-align: center;">_____</td> </tr> </table> *Include those not causing injury or death		# Occurrences	Injuries	_____	Deaths	_____	Total Incidents*	_____	**NOTE: Entering data in this section does not relieve a firm of obligations to immediately report to the Commission any information affecting the scope, prevalence, or seriousness of the defect or hazard as defined in 16 CFR 1115																																																			
	# Inquiries																																																																						
Toll-Free Number Calls	_____																																																																						
E-mail Inquiries	_____																																																																						
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Total Incidents*	_____																																																																						

Definitions

Field Name	Meaning
Header	
<i>CASE #</i>	Product recall case number assigned by CPSC. Automatically filled in.
<i>Company Name</i>	Name of company performing the recall. Automatically filled in.

<i>Reporting Dates</i>	Enter the dates encompassing reporting period for the data submitted on this form. For example, if the data submitted on this form represents the recall progress for the entire month of October, enter "10/01/20xx" and "10/31/20xx"
<i>Compliance Officer</i>	Name of CPSC Compliance Officer assigned to handle the recall. Automatically filled in.
<i>E-Mail</i>	E-mail address of CPSC Compliance Officer assigned to handle the recall. Automatically filled in.
<i>Product</i>	Name of the product being recalled. Automatically filled in.
<i>Suggested Retail Price</i>	Manufacturer's Suggested Retail Price of the product being recalled. Automatically filled in.

Section I – Products Corrected/Captured	
<i>Total Products:</i> <ul style="list-style-type: none"> • <i>With Manufacturer</i> • <i>With Distributor</i> • <i>With Retailer</i> • <i>With Consumer</i> • <i>Total</i> 	Total number of product units in the possession of manufacturers, distributors, retailers, and consumers. The total number of affected product units is entered in the "Total" field. Automatically filled in.
<i>Corrections This Period:</i> <ul style="list-style-type: none"> • <i>With Manufacturer</i> • <i>With Distributor</i> • <i>With Retailer</i> • <i>With Consumer</i> 	Enter the total number of product units in the possession of manufacturers, distributors, retailers, and consumers that were corrected during the current reporting period.

Section II – Notification Measures	
<i>Direct Mail Letter</i>	Enter the number of letters mailed during the current reporting period directly to registered owners of the product subject to the recall.
<i>Direct E-mail</i>	Enter the number of e-mails sent during the current reporting period directly to registered owners of the product being recalled.
<i>Direct Phone Call</i>	Enter the number of registered owners of the product being recalled that your firm contacted by phone during the current reporting period.

<i>Billing Insert</i>	Enter the number of recall notices included with invoices for billed services during the current reporting period.
<i>Magazine</i>	Enter the number of unique persons that read advertisements placed during the current reporting period in magazines by your firm.
<i>Newspaper</i>	Enter the number of unique persons that read advertisements placed during the current reporting period in newspapers by your firm.
<i>Radio</i>	Enter the number of unique persons that heard radio advertisements placed by your firm during the current reporting period.
<i>Television</i>	Enter the number of unique persons that watched television advertisements, not including any Video News Release, placed by your firm during the current reporting period.
<i>Website</i>	Enter the number of unique persons that read a recall notice during the current reporting period placed on your firm's website.
<i>Video News Release</i>	Enter the number of unique persons that watched any Video News Release distributed by your firm during the current reporting period.
<i>Pediatrician Poster</i>	Enter the number of recall notice posters distributed to pediatrician's offices by your firm during the current reporting period.
<i>Retail Store Poster</i>	Enter the number of recall notice posters distributed to retail stores by your firm during the current reporting period.
<i>Post Office Poster</i>	Enter the number of recall notices posters distributed to post offices by your firm during the current reporting period.
<i>Thrift Store Poster</i>	Enter the number of recall notice posters distributed to thrift stores by your firm during the current reporting period.

Section III – Consumer Awareness	
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<i>Direct Mail Letter</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a letter they received directly from your firm.
<i>Direct E-Mail</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of an e-mail they received directly from your firm.
<i>Direct Phone Call</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a phone call they received directly from your firm.
<i>Billing Insert</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a recall notice included with an invoice for a billed service.
<i>Magazine</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of an advertisement placed by your firm in a magazine.
<i>Newspaper</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a recall notice included with an invoice for an advertisement placed by your firm in a newspaper.
<i>Radio</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a radio advertisement placed by your firm.

<i>Television</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a television advertisement placed by your firm.
<i>Website</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a recall notice placed on your firm's website.
<i>Pediatrician Poster</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a recall notice poster placed in a pediatrician's office.
<i>Retail Store Poster</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a recall notice placed in a retail store.
<i>Post Office Poster</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a recall notice placed in a post office.
<i>Thrift Store Poster</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a recall notice poster placed in a thrift store.
<i>Unknown</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and did not know where they learned of the recall program.

<i>Other</i>	Enter the number of consumers that contacted your firm during the current reporting period for correction of a recalled product and indicated that they decided to contact your firm because of a recall notice that does not fit in any of the other categories listed on this report. Indicate a separate figure for each type of unclassified recall notice.
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<i>Section IV – Consumer Inquiries</i>	
<i>Toll-Free Number Calls</i>	Enter the number of phone calls that your firm received about this recall during the current reporting period.
<i>E-Mail Inquiries</i>	Enter the number of e-mails that your firm received about this recall during the current reporting period.
<i>Written Inquiries</i>	Enter the number of written inquiries received about this recall during the current reporting period.
<i>Website Inquiries</i>	Enter the number of information requests entered at your firm’s website received about this recall during the current reporting period.

<i>Section V – Incident Update</i>	
<i>Injuries</i>	Enter the number of injuries associated with the product resulting from the defect the product was recalled for.
<i>Deaths</i>	Enter the number of deaths associated with the product resulting from the defect the product was recalled for.
<i>Product Failures</i>	Enter the number of times the product failed because of the defect it was recalled for regardless of whether any injuries or deaths occur.

Summary of Changes

We concluded that the form needs to be as simple and self-explanatory as possible to avoid any confusion regarding the definitions of terms and headings. We removed the “Total” columns from Sections II, III, IV and V. The data for these columns is

automatically calculated when reports are entered into the database. We also removed the “Percent” columns for the same reasons. We left the “Total” column in Section I, to be filled out by the CPSC prior to the distribution of the form. This number can change if new products are discovered. Therefore, these numbers should be left in the form to prompt a company to contact the CPSC if changes are required. The submittal instructions were located at the bottom of the form. We moved the instructions for submitting the form to the top to help ensure that companies would follow them.

We added the e-mail address of the CO handling the case and a “Suggested Retail Price” field to the form header. The e-mail address will facilitate communication between the firm and the CO. The retail price can be used in the analysis of recall effectiveness based on product price. The “Total # of Affected Products” field was moved to Section I of the form.

Section II of the form caused confusion for the firms. We changed the instructions for this section to explicitly state that the firm is only to enter data in this section that applied to the current reporting period and that total data is not to be included. It is not appropriate to quantify all types of notification measures as “attempts.” Therefore, we divided the notification measures into three categories:

- Direct notifications – we relabeled the field “# Distributed” so that the firm will enter the number of notifications sent out during the reporting period
- Media notifications – the heading reads “# People” with a subheading “Heard or saw the ad at least once” to instruct the firms to enter the

number of people the ad campaign reached and not the number of ad campaigns

- Poster notifications – the heading now reads “# New Posters Distributed” to prompt the firms to enter the number of posters the firm distributed that month

When the form is distributed to the firms, Section II should only contain the notification measures that are agreed upon in that recall. Including every measure on the form causes some firms to assume that they should be implementing each one.

We revised the instructions for Section III of the form to clarify that the company is to enter the number of consumers that indicated hearing about the recall by each notification method. We changed the column heading to read “# Consumers.” We added an “Unknown” field to this section to allow firms to enter the number of consumers that could not recall how they learned of the recall. We added an “Other” field so that firms could enter consumer responses that did not fit in any of the existing categories.

The title of Section IV, “Calls to 800 Number/Correspondence,” was inappropriate for the data it requested. We changed the title to read “Consumer Inquiries.” There are four types of correspondence that are quantified by this section:

- “Toll-Free Number Calls”
- “E-Mail Inquiries”
- “Written Inquiries”
- “Website Inquiries”

We changed the column heading from “# From Customers This Reporting Period” to “# Inquiries” to simplify the form.

Section V collects incident data regarding the defective product. If many injuries and deaths occur during a recall, the recall may not have been effective enough. In these cases the CO may require a firm to distribute a second wave of notices. Therefore, we recommend that an email be sent to the Compliance Officer handling the case when a report is received with updated incidents. We changed the field labeled “Incidents” to read “Product Failures” in this section to ensure that the firm enters the total number of product failures that occurred during this reporting period regardless of whether an injury or death resulted. We also added a footnote to this section to inform firms that reporting failure data in this section does not relieve them of their obligation to report incidents immediately to the Commission.

Appendix G – Compliance Officer Interview Questions

1. When negotiating a recall, what concessions are generally asked of the firm? Of the CPSC?
2. Are time limits negotiated on for recalls?
3. What data does the company usually agree to collect from consumers?
4. What reasons?
5. Are there procedures for compliance officers when negotiating a recall?
6. How much leeway do they have?

7. Are there any policies in place for the CPSC to make sure the firm is following the guidelines previously decided on and performing them in a timely manner?

8. When do you show a firm the monthly progress report form?
9. Do you help explain it to them?
10. Do you warn the firm about the data they will need to collect before they finish writing their CAP?

11. When does a case get closed?

Appendix H - Compliance Officer Interview Data

Compliance Officer 1

1. Company: notices to consumers and distributors, correction method, monthly progress report
2. Corrective action plan is in effect indefinitely, monitoring usually maintained 1-2 years
3. See monthly progress report
4. Allow CPSC to calculate recall effectiveness
5. CO's are given rough outline of negotiation process, however no one formula applies to all recalls.
6. CO's have authority to negotiate recalls as they see fit.
7. The CPSC checks retailers to make sure posters are up and products are not on the shelves.
8. Progress report is generally an afterthought, not included in negotiations until final CAP approval letter
9. The form is sent as-is with no explanation save a paragraph in the CAP approval letter
10. No indication is generally given to a firm before they are sent the monthly progress report form with the CAP approval letter
11. Cases are closed when the company requests closure and the closure is approved by the CO in charge of the recall. Generally this can occur after 6 months to 2 years.

Compliance Officer 2

1. Companies can be required to implement a toll free #, website notice, press releases, retail posters, VNR, and direct notice to retailers.
2. Company is required to honor recall for life of company.
3. Progress Report data
4. Effectiveness statistics.
5. There is a general CAP process overview, but no formula to follow for every recall.
6. Leeway is problem driven. It is based on the complexity of the CAP. He tries to treat them all equal and is hard enough on the company to ensure the problem is solved.
7. CPSC can force a firm to comply in filling out progress reports.
8. CAP Accept Letter is when the firm learns of the progress report.
9. No explanation provided.
10. No mention of progress report forms is given prior to CAP Accept Letter.
11. A case is closed when a company has completed their CAP and they say that no more effected products can be corrected. It is based on an honor system.

Compliance Officer 3

1. He asks for press release, web site notice, direct mailings for known owners, point-of-purchase posters, and letters to retailers. Sometimes an insert into consumable goods replacements is requested. Example: Ink jet cartridges, glad plug-ins.
2. No time limit on recalls
3. Info on forms
4. Effectiveness statistics.
5. General guidelines are in place for handling recalls
6. Leniency is based on hazard classification and notification measures. If all the names of owners are known, no press release is required. Not lenient based on company experience.
7. He will check up on the company once or twice after the recall is in place to make sure they are filling out forms, but does not actively follow recalls usually.
8. Form goes out with the Accept CAP letter, though he mentions it very briefly during negotiation. He doesn't mention anything specific about the data they need to collect, only that they will have to report back to the CPSC monthly.
9. No
10. No, only mentions that they will need to fill out a monthly report, doesn't go into what is on that report.
11. Company can request case to be closed, or the Director might email him telling him to look at closing a case. The nature of the product and price are taken into account when deciding to close a case or not.

Compliance Officer 4

1. Generally asks for both a press release and paid ads in industry-specific magazines, also web site listing, in-store posters, and direct mailing.
2. No. Possible for life of posters being put up.
3. Progress Report Data
4. Effectiveness Statistics.
5. Yes, there are general guidelines.
6. CAP negotiation depends on type of product and hazard severity
7. Yes, we visit to ensure posters are up, and call to make sure. Call more than visit.
8. It goes out with the Accept CAP letter, but it should go out sooner.
9. He will explain the form to them if they need explanation.
10. No, but he believes they should.
11. Depending on the severity of the defect, he might follow the recall and suggest it be closed after a large number of products were returned.

Compliance Officer 5

1. Notification types, defect correction actions
2. Monitoring continues until firm requests closure of case; will occasionally tell companies to request closure.
3. Only progress report data
4. Effectiveness statistics
5. Personally tracks recalls under his stewardship by calling or e-mailing as well as ensuring that monthly progress reports are filled out correctly.
6. No real leeway. Though he might be more patient or helpful with a small or inexperienced firm.
7. He will follow up with firms if they are being delinquent.
8. Form goes out with the CAP Accept Letter, this could be days or weeks after the CAP is being implemented.
9. No
10. No
11. When a company requests to close the case, though he sometimes tells the company to close the case if the numbers are high.

Compliance Officer 6

1. Language must match CPSC requirements on all forms of notice. Usually request press release and in-store posters.
2. Recall is in effect forever, though monitoring can be closed upon company request.
3. Progress report form data.
4. CPSC to report effectiveness statistics
5. Basic CAP plan in place for CO's to follow, but actual negotiation varies recall to recall.
6. Smaller or inexperienced companies might get a little leeway but still need to do the recall. Hazard classification also plays a role in the amount of leeway given.
7. Recall Monitor prepares field assignments to conduct recall effectiveness checks. In my opinion this is where the ball gets dropped. If the field discovers an ineffective recall, what happens next? They notify the headquarters compliance officer who is supposed to send a letter. Are letters sent every time? No.
8. Sent out during the CAP accept letter. Mentioned that they need to be sent out earlier, maybe during the "CPSC Letter of Notice"
9. Not really.
10. Not really.
11. When a company requests to have their case closed, ninety-nine percent of cases closed.

Compliance Officer 7

1. She usually wants a Press Release, PoP Posters, website notice, and sometimes VNR. More strict with children's products.
2. No limit on recalls. Monitors for at least 6 months, usually longer.
3. Info on forms
4. Effectiveness Statistics.
5. General guidelines are in place.
6. Not really any leeway. Is more stringent on children's products.
7. She doesn't follow up on progress reports.
8. Firm gets the form at the Accept CAP letter.
9. No.
10. No, but putting data collection in CAP negotiation would help.
11. At least 6 months after monitoring, sometimes requests more notice if the correction percentage is really low.

Compliance Officer 8

1. She wants notifications sent to retailers and known consumers. Also, VNR and PR at minimum.
2. No limits on the recall. Posters are left up longer for seasonal products to get the beginning of the next season of the product.
3. Info on progress report.
4. Effectiveness statistics.
5. There are general guidelines
6. Hazard plays a role in standards. Not so harsh on a Class C recall.
7. Random effectiveness checks by field investigators at retailers and manufacturers.
8. The form goes out with the Accept CAP letter.
9. No
10. No.
11. When company requests case to be closed, though more notification might be asked for if the percentage is really low.

Appendix I – Company Interview Questions

1. At what point in the recall negotiation process did you receive the form from the CPSC?
2. Were the data collection requirements clearly explained in the CAP negotiation process?
3. Should data collection for the form be negotiated as part of the CAP?
4. At what point do you begin collecting data for the form?
5. Is the form clear and easy to fill out?
6. Are the terms defined or explained to you in any way?
 - a. How do you define the media types in Section II?
7. Is the structure of the form orderly?
8. Have you ever called the CPSC to address clarity issues?
 - a. Has the CPSC ever called you regarding data entered on the form?
9. Do you collect circulation data regarding your notifications? For example, can you quantify the number of impressions generated by a TV advertisement?
10. What benefits would your company like to gain from filling out these monthly progress reports?

Appendix J – Company Interview Data

Company 1

1. They never received a monthly progress report, but created their own form to collect the data.
2. No, data collection requirements were never explained.
3. No, they do not use the form so it would be useless to include it in the CAP negotiation phase.
4. They do not collect this data. Not Applicable.
5. They do not use the form. Not Applicable.
6. No.
 - a. They do not collect the data for Section II, so this is not applicable.
7. They do not use the form and do not have one. Not Applicable.
8. No, they do not use the form, so they have never called the CPSC.
 - a. No, they do not use the form, so they have never been called by the CPSC.
9. They have never done paid ads. Not Applicable.
10. There are no benefits they could get from this form.

Company 2

1. They received the form with the CAP Approval Letter.
2. No, the data collection requirements were never explained.
3. No, since all their recalls have been fast track they do not think the form should be in the negotiation phase since there is no negotiation phase in fast track recalls.
4. They begin collecting data when consumers start contacting them.
5. Yes, but they have reservations about new companies. They are experienced, so the form is clear to them.
6. No explanation of the terms was provided.
 - a. They define the media type notifications in Section II as the circulation of the particular ad placed.
7. Yes, but Section II should be separated into groups of notification type.
8. No, they have never called the CPSC about the form.
 - a. No, the CPSC has never called them about their submitted progress reports.
9. Yes, they do collect circulation data for the paid ads they conduct.
10. Knowing what notification measures work best will eliminate unnecessary workload for companies. Also, the number of consumers reached by the notification methods is important.

Company 3

1. They receive the progress report with the CAP Approval letter.
2. No, no explanation was needed as they are already familiar with the process.
3. Yes, if there are changes to the form or if it is a first time company, it should be announced earlier in the negotiation. Otherwise, it is not necessary to include it in the negotiation phase.
4. They begin collecting data as soon as they send the full report to the CPSC outlining the recall, but the start collecting consumer awareness data at the cap implementation.
5. Yes, the form is clear and easy to fill out.
6. No definitions were provided, but they are familiar with the process.
 - a. They define media notifications as hits on their website. No other media notification types were conducted by the firm.
7. Yes, the form is orderly.
8. No, they have never called the CPSC to address the form.
 - a. No, the CPSC has never called them regarding their submitted progress reports.
9. Yes, they have done a magazine ad and did collect the circulation data for the magazine.
10. No specific benefits were stated by the firm.

Comments:

- A quarterly form instead of a monthly one would be easier for most companies.
- Section V creates product liability issues.

Company 4

1. They got the form with the CAP Approval letter.
2. The only explanation they got was in the letter, and the only instructions were to submit it monthly. No other explanation was provided.
3. They do not have an opinion as to whether the form should be introduced in the negotiation phase or not.
4. They begin collecting data as soon as products start being returned.
5. Section I is not clear. Sections II – V are clear though.
6. No definitions or explanation of the terms were provided to them.
 - a. They have never done paid advertisements, but a PR ended up in a newspaper once and they marked down “1” for newspapers on that recall.
7. Yes, the form is orderly.
8. They called their CO once to explain how they were filling out Section I of the form since it was unclear to them. They filled out Section I differently than other companies.
 - a. The CPSC has never called them regarding the form.
9. They have never done paid ads, and do not think it would be possible to collect circulation data.
10. Knowing the best notification methods would be useful, as well as knowing expected return rates for recalls based on nature of the product.

Company 5

1. They did not remember exactly when they received the progress report, but thought it was early on in the process. It was around the time that negotiations started.
2. No, the data collection requirements were never explained, but they do not collect consumer awareness data anyway.
3. Yes, the form should be part of the CAP negotiations. They would be willing to collect more data if it was part of the negotiations.
4. They start collecting data for Section I when the CAP is implemented. They do not collect any other data on the form.
5. Yes, the form is clear and easy to fill out to them.
6. No explanation or definition was provided to them about the terms on the form. They do not collect consumer awareness data though.
 - a. They do not collect data for Section II. Not Applicable.
7. Yes, the form is orderly.
8. They have never called the CPSC regarding the form.
 - a. The CPSC has never called them regarding the form.
9. They do not collect circulation data for any advertisements. They think it might be hard to collect such data.
10. There are no benefits they can receive from this form. The only thing that matters is that they get a high percentage of their product back for correction.

Company 6

1. They received the form roughly two weeks after the CAP implementation but before the CAP Approval letter.
2. No, the data collection requirements were never explained.
3. They do not think that the form should be part of negotiations, but earlier introduction would be better.
4. They start collecting data as soon as consumers start contacting them.
5. No, the form is not clear and easy to fill out. Many parts of the form do not apply to retailers like them.
6. No explanations or definitions were provided to them.
 - a. They have never done a paid advertisement, though they enter the number of hits on their website.
7. Yes, the form is orderly.
8. They called their CO initially to have the form explained to them. It was clearly explained.
 - a. The CPSC has never called them regarding the form.
9. They have never done paid advertisements. Not Applicable.
10. Knowing the best notification methods would be useful so they could focus on those methods.

Comments:

- Incidents are hard to track, so would be useful to get the form earlier in process.

Company 7

1. They receive the form with the CAP Approval Letter.
2. No explanation was provided to them.
3. Yes, it should be included in the negotiations.
4. Started data collection before they got the form because the form arrives late in the process. They were lacking some data on the form because of this.
5. Yes, the form is clear and easy to fill out.
6. No definitions or explanations were provided.
 - a. They have never done paid advertisements. Not Applicable.
7. Yes, the form is orderly.
8. They have never called the CPSC regarding the form.
 - a. They have never been called by the CPSC regarding the form.
9. They have never done a paid advertisement. Not Applicable.
10. Not really useful to them. Would be helpful to know the best notification methods though.

Comments:

- A customized form with only those notification methods used by the firm included would be better.
- Add property damage to Section V for incidents with no injuries or deaths.
- Add e-mail to Section II and III.

Company 8

1. They received the form in the CAP Approval letter.
2. No explanation of the data collection requirements was provided.
3. They do not think that the form should be part of the negotiations, but the form should be introduced earlier in the process.
4. They start collecting data before the form is sent, but they are experienced so they know what data needs to be collected.
5. Yes, the form is clear and easy to fill out. Some of his clients had questions though.
6. No definitions or explanations of the terms were provided.
 - a. They would define Section II as number of campaigns run.
7. Yes, the form is orderly.
8. No, they have never called the CPSC regarding the form.
 - a. They have never been called by the CPSC.
9. Yes, if they do a paid advertisement the data is easy to collect.
10. Citing stats from the progress report in the closing letter from the CPSC would be helpful. Knowing the most effective methods would be useful.

Comments:

- A definitions page would be helpful for firms.
- Would be useful if the CPSC published a final report with the effectiveness statistics in it.

Company 9

1. They received the form with the CAP Approval letter.
2. No explanation was given, but they are experienced so they know what needs to be collected.
3. Do not include the form in negotiations, as this implies that the form is optional. Introduce the form earlier though, just not as a negotiable thing.
4. They start collecting data as soon as CAP goes into effect, though Section I data is known at the time of the full report at the beginning of the negotiation phase.
5. Sections II and III are problem areas for many firms. Some firms do not have customer service departments capable of collecting that data.
6. The terms are never defined or explained in any way.
 - a. They define the Section II data as number of campaigns run.
7. Yes, the form is orderly.
8. No, they have never called the CPSC about the form.
 - a. Yes, they were called once by the CPSC regarding the form.
9. Circulation data is collected for media and website notifications.
10. Yearly report on effectiveness divided by product type, price, etc.

Comments:

- Include progress report in the initial full report request package to introduce the form to the firms earlier.

Company 10

1. They received the form with the CAP Approval letter.
2. No explanation was given, but they are experienced so they know what needs to be collected.
3. Do not include the form in negotiations, as this implies that the form is optional. Introduce the form earlier though, just not as a negotiable thing.
4. They start collecting data as soon as CAP goes into effect, though they are an experienced company and continuously collect some data on the form.
5. Sections II and III are not real clear.
6. The terms are never defined or explained in any way.
 - a. They have never done paid ads. Not Applicable.
7. Yes, the form is orderly.
8. No, they have never called the CPSC about the form.
 - a. No, they have never been called by the CPSC about the form.
9. Never done paid advertisements, though circulation data could be collected easily.
10. Yearly report on effectiveness divided by product type, price, etc.

Company 11

1. They received the progress report with the CAP Approval letter.
2. No explanation of the data collection requirements was given to them.
3. Not necessary to include the progress report in the negotiations, though it would be useful to receive the form earlier than the CAP Approval letter.
4. They already had all the data necessary for the progress report. They are a catalog company, and know the names of all the consumers that own their products.
5. The form is clear and fairly easy to fill out.
6. No definition or explanation of the terms on the form was ever given.
 - a. They have never conducted a media type advertisement. Not Applicable.
7. The form is orderly. It is slightly redundant, but easy to use and not confusing.
8. No, they have never called the CPSC regarding the form.
 - a. No, the CPSC has never called them regarding the form.
9. They have never conducted paid advertisements. Not Applicable.
10. A report of actions and effectiveness of those actions to provide to upper management as a summary would be helpful.

Company 12

1. They retrieved the form from the CPSC website. They already had the form from previous recalls, but received a paper copy early on in the process as well.
2. No explanation of the data collection requirements was given.
3. It would be useful to include the progress report in the CAP negotiation process.
4. They were not required to complete Section II or III, but usually start collecting data as soon as recall is implemented.
5. The form is fairly clear, but they created their own excel spreadsheet to collect their data and then they translated that data onto the progress report. Make the periodic and total columns clearer.
6. No definitions or explanation of the terms was given.
 - a. The only media type advertisement they have conducted is posting the recall on their website. They entered the number of sites the recall appeared on in Section II.
7. The form is orderly.
8. They have never called the CPSC regarding the form.
 - a. The CPSC has never called him regarding the form.
9. They have never done paid advertisements. Not Applicable.
10. An expected return rate for products based on the nature of the product would be useful. There are no other benefits their firm can receive from filling out this form though.

Comments:

- Leave space in Section II for write-in methods performed by the firm.

- Add a place for the name of the person filling out the form.
- Add a revision date to the header of the form.

Company 13

1. They received the form with the CAP Approval letter.
2. No explanation about the data collection requirements was given to them.
3. Yes, some sections on the form do not apply to them and it would be helpful to discuss that earlier in the process.
4. They collect data starting with the implementation of the CAP.
5. No, the form is not clear and easy to fill out. They do not see the necessity of Section III since they are a retailer not a manufacturer. Section I is confusing; it is not applicable to them being a retailer. They just collect the products and destroy them all at once.
6. No definitions or explanations were given to them about the terms on the form.
 - a. They define the fields in Section II of the form as the number of advertisement campaigns run.
7. The form is orderly.
8. They have never called the CPSC about the form.
 - a. The CPSC has never called them about the form.
9. They have never done a paid ad, though it would be possible to collect circulation data if they conducted one.
10. The form is not of any use to them now. It would be helpful to know the most effective methods for certain product types and price ranges.

Comments:

- Monthly is too often to report. Would be better for a yearly form since after two weeks their data rolls into a Year-To-Date total.

- If longer reporting periods are implemented then Section V becomes obsolete.

Add a footnote saying that filling out Section V does not relieve a firm of reporting requirements defined in 16 CFR 1115.

Company 14

1. They received the progress report with the CAP Approval letter, two or three weeks after the recall had been implemented.
2. No explanation was given to them, but they are already familiar with the form from previous recalls.
3. It would be helpful to receive the form earlier if the firm does not have an attorney to warn them about the data.
4. Since they are counsel to firms, they do not collect any data themselves.
5. The form is not real clear. See comments below.
6. The terms were explained when they called the CPSC for clarification.
 - a. They enter Section II data as the number of ad campaigns run by the firm.
7. Yes, the form is orderly.
8. Yes, they have called the CPSC to clarify the form for them.
 - a. The CPSC has called them to address data entered on the form.
9. No, their clients have not collected circulation data for paid ads run. Not sure if that data is available.
10. There are no benefits they want from the form, though a summary of the effectiveness of previous recalls of their product type would be useful.

Comments:

- Many parts of the form do not get filled out each time; try to customize it more.
- Section II is not applicable after the first month for most recalls. Take it out.
- Make a subsequent recall notice to handle second notice sent out by the firm.

- The first three rows in Section I are useless, since the only thing that matters is that the consumers return their products.
- It is hard to track data from toll-free calls since some firms' numbers simply forward to the customer service department, not a recall department.
- An electronic way to submit form would be very useful.
- Distribute any revised forms to everyone to keep it standardized.

Company 15

1. They received the progress report before the initial report of their recall. They think this is too early as it is before it is decided whether a recall will even happen.
2. No explanation of the data collection requirements was ever given by the CPSC. Their upper management explained it to them.
3. It is not necessary to include the progress report in the negotiations because they collect all the required data even if no recall is in progress.
4. They collect all the required data even if no recall is in progress.
5. Yes, the form is clear and easy to fill out.
6. The Commission provided no definitions for the terms on the progress report.
 - a. They define the terms in Section II as the number of impressions generated by advertisements.
7. Yes, the form is orderly.
8. No, they have never called the CPSC to address issues with the form.
 - a. The CPSC has never called them about data entered on the form.
9. No, they do not collect circulation data for paid advertisements.
10. They are not sure if the form could be of any use, though a summary of what was done and the effectiveness would be useful.

Comments:

- Send the progress report with the full report request package.
- An online form for the firms to fill out would be better.

Company 16

1. They receive the progress report with the CAP Approval Letter.
2. No explanation of the data requirements was given to them, but they are already familiar with the progress report from previous recalls.
3. It is not necessary to include the progress report in the negotiation process, though it would be useful to know about it earlier.
4. They start collecting data for the progress report at the CAP implementation.
5. Yes, the form is clear and easy to fill out.
6. The CPSC has never given them any definitions for the terms on the progress report.
 - a. They define the Section II fields as impressions generated by advertisements.
7. Yes, the form is orderly.
8. No, they have never called the CPSC about the progress report.
 - a. No, the CPSC has never called them about the progress report.
9. They do collect circulation data for any paid advertisements, as well as the number of hits on their website.
10. The form is of no use for them now, but they would like to know the most effective notification methods as well as expected return rates based on product types and other characteristics.

Company 17

1. They received the progress report after the CAP Approval Letter from their lawyer.
2. The CPSC provided no explanation of the data collection requirements, but their lawyer explained the form to them clearly.
3. No, the form should not be included in the negotiation process because the form is easy to understand.
4. They started collecting data for the form early on because their lawyer warned them.
5. Yes, the form is clear and easy to fill out, though they had to ask their lawyer a couple questions.
6. No, the CPSC never defined any of the terms on the form.
 - a. They have never done paid advertisements, though they enter the number of posters distributed, and they enter the number of hits on their website.
7. Yes, the form is orderly. It might be slightly cluttered.
8. No, they have never called the CPSC regarding the form.
 - a. The CPSC has never called the about the form.
9. They have never done a paid advertisement, though they could collect circulation data if needed.
10. It could be helpful to get a summary sheet noting the most effective methods.

Comments:

- A definitions page would be very useful.

Appendix K – Calculations

Bureau of Labor Statistics – Consumer Price Index

Year	Annual CPI
1995	152.4
1999	166.6
2001	177.1
Month	Trailing 12-Month Average
Dec-02	179.2

Source: U.S. Bureau of Labor Statistics CPI-U Series ID CUUR0000SA0

Injury and Death Costs

	1995	\$
Injuries	29,900,000	\$ 405,000,000,000
Deaths	22,000	\$ 110,000,000,000
	Total	\$ 515,000,000,000
		1995 U.S. dollars
Source: Miller et al, 2000		
	1999	2001
Injuries	N/A	34,300,000
Deaths	24,800	N/A
Source: Ault, 2002		

The average cost of a consumer product related injury in 1995 was \$13,545 in 1995 U.S. dollars. The average cost of a consumer product related death in 1995 was \$5,000,000 in 1995 U.S. dollars.

2001 Injury Cost

$$\$405,000,000,000 \left(\frac{34,300,000}{29,900,000} \right) \left(\frac{177.1}{152.4} \right) \approx \$540,000,000,000$$

We estimated the cost of consumer product related injuries in 2001 by multiplying the reported cost of the 1995 injuries by the ratio of the number of injuries in 2001 to the number of injuries in 1995, then multiplying by the ratio of the CPI in 2001 to the CPI in 1995.

1999 Death Cost

$$\$110,000,000,000 \left(\frac{24,800}{22,000} \right) \left(\frac{166.6}{152.4} \right) \approx \$136,000,000,000$$

We estimated the cost of consumer product related deaths in 1999 by multiplying the reported cost of the 1995 deaths by the ratio of the number of deaths in 1999 to the number of deaths in 1995, then multiplying by the ratio of the CPI in 1999 to the CPI in 1995.

Societal Savings of Recall Improvements

$R_i = 0.05$: percentage risk of injury from defect per owner per year; expressed as a decimal

$R_d = 0.00001$: percentage risk of death from defect per owner per year; expressed as a decimal

$L = 5$: average lifetime of product in years

$N = 30,000$: number of defective products in consumer possession

$I_e = N \times L \times R_i$: number of injuries due to defect expected if product is not recalled

$$I_e = 30,000 \times 5 \times 0.05 = 7,500 \text{ injuries}$$

$D_e = N \times L \times R_d$: number of deaths due to defect
 expected if product is not recalled

$$D_e = 30,000 \times 5 \times 0.00001 = 1.5 \text{ deaths}$$

$N_{cur} = N \times 14\%$: number of products expected to be
 returned by recall negotiated with
 current notification statistics

$$N_{cur} = 30,000 \times 14\% = 4,200 \text{ products}$$

$I_{cur} = N_{cur} \times L \times R_i$: number of injuries due to defect
 expected to be prevented if product
 is recalled with current
 notification statistics

$$I_{cur} = 4,200 \times 5 \times 0.05 = 1,050 \text{ injuries}$$

$D_{cur} = N_{cur} \times L \times R_d$: number of deaths due to defect
 expected to be prevented if product
 is recalled with current
 notification statistics

$$D_{cur} = 4,200 \times 5 \times 0.00001 = 0.21 \text{ deaths}$$

$N_{new} = N_{cur} \times 110\%$: number of products expected to be
 returned by recall negotiated with
 notification statistics from our
 recommendations

$$N_{new} = 4,200 \times 1.1 = 4,620 \text{ products}$$

$I_{new} = N_{new} \times L \times R_i$: number of injuries due to defect
 expected to be prevented if product
 is recalled with notification
 statistics from our recommendations

$$I_{new} = 4,620 \times 5 \times 0.05 = 1,155 \text{ injuries}$$

$D_{new} = N_{new} \times L \times R_d$: number of deaths due to defect
 expected to be prevented if product
 is recalled with current
 notification statistics

$$D_{new} = 4,620 \times 5 \times 0.00001 = 0.231 \text{ deaths}$$

$$C_e = (I_e \times \$13,545) + (D_e \times \$5,000,000):$$

cost of expected injuries and deaths if product
 is not recalled

$$C_e = (7,500 \times \$13,545) + (1.5 \times \$5,000,000) = \$109,087,500$$

in 1995 U.S. dollars

$$S_{cur} = (I_{cur} \times \$13,545) + (D_{cur} \times \$5,000,000):$$

savings realized by injuries prevented if product
 is recalled with current notification statistics

$$S_{cur} = (1,050 \times \$13,545) + (0.21 \times \$5,000,000) = \$15,272,250$$

in 1995 U.S. dollars

$$S_{new} = (I_{new} \times \$13,545) + (D_{new} \times \$5,000,000):$$

savings realized by injuries and deaths prevented
if product is recalled with notification
statistics from our recommendations

$$S_{new} = (1155 \times \$13,545) + (0.231 \times \$5,000,000) = \$16,799,475$$

in 1995 U.S. dollars

$S_{add} = S_{new} - S_{cur}$: additional savings realized by
prevention of additional injuries and
deaths by notification statistics
from our recommendations

$$S_{add} = \$16,799,475 - \$15,272,250 = \$1,527,225$$

in 1995 U.S. dollars

$T = 0.5$: typicality factor of this recall; expressed as
a decimal; for example, 0.5 means that average
recall would realize 50% of the savings of
this recall

$Y = 350$: approximate number of recalls overseen by CPSC
in one year

$S_{all} = S_{add} \times T \times Y$: additional savings realized by
prevention of additional injuries
and deaths by all recalls in one
year with notification statistics
from our recommendations

$$S_{\text{all}} = \$1,527,225 \times 0.5 \times 350 = \$267,264,375$$

in 1995 U.S. dollars

$$S_{\text{all}} \times \left(\frac{179.2}{152.4} \right): \text{ additional savings for all recalls in}$$

one year corrected to current U.S.

dollars

$$\$267,264,375 \times \left(\frac{179.2}{152.4} \right) = \$314,263,622 \text{ in current U.S.}$$

dollars