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Buchholtz, Jerrod J. ***Positive Effects on Organization Effectiveness From Implementing Behavior-Based Safety Training Program***

Abstract

Behavior-based safety training programs are a key component in driving positive culture throughout an organization. A safety management system that drives culture, reduces injuries, lowers workers' compensation claims, and improves workplace hazards ultimately plays a key role in organizational effectiveness. This project will highlight how to implement the DuPont STOP behavior-based safety program and the positive effects it has had on XYZ. The areas that are covered in this project are:

- how to develop and implement this program from top management down to production workers
- what areas the behavior-based safety training program will target to improve organizational effectiveness
- the statistical outcomes from the organization from implementing the DuPont STOP behavior-based safety training program

I hope the information provided in this project will show the positive effects behavior-based safety training has had on XYZ.

Acknowledgments

I would like to first thank my boss - Denise Escher and the XYZ organization for allowing me to conduct this study. In addition, I would like to thank all the employees who participated in the survey as their contributions facilitate the information needed. Lastly, I would like to thank all my family and friends for their support while completing this project. It has been a great experience completing this study and I hope the information provided will be able to shed some light on how effective behavior-based safety programs can be when implemented correctly.

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Chapter I: Introduction and Problem Statement

The purpose of this study is to identify how incorporating the DuPont STOP Behavior-Based Safety-Training Program has improved organizational effectiveness within XYZ. To measure the effectiveness, we will look at the organization's past incident rates, and workers' compensation claims, and review if the organization has effectively managed workplace hazards through safety audits and inspections. In addition, we will discuss how the DuPont STOP program affects the overall culture and if there is a correlation between lowering incident rates, workers' compensation claims, and hazards in the workplace. Lastly, XYZ employees will fill out a survey analysis regarding the DuPont STOP Behavior-Based Safety Program in the organization.

The methods used in this study will include general research through the internet, an inside look at XYZ Behavior-Based Safety Training Program, workplace case studies from auditing records, and employee surveys that evaluate the DuPont STOP program and its effectiveness. Once that information is collected, data analysis from the study helped validate the program's effectiveness within the organization. This study assumes that employees at XYZ will answer the survey questions truthfully. There is a potential that employees will be reluctant to answer truthfully due to my being the Safety Manager at the organization.

Significance of the Topic

Preventing workplace injuries directly improves employee morale, and productivity, and helps retain valuable employees. The Occupational Safety and Health Administration (OSHA) established itself in 1971 to emphasize the importance of safety and provide a structural outline of workplace standards for compliance purposes. Behavior-base safety training was developed to help promote safety within the workplace, which in turn helped organizations stay compliant

with OSHA standards by stressing the importance of their safety culture. The study of this topic is significant because it provides a unique opportunity to evaluate a behavior-based safety training program from inside an organization. Improving and maintaining an organization's safety culture can be a very daunting task. Companies that are effective in this see great success in the overall performance of their employees and program.

Interest in the Topic

Behavior-based safety training programs are effective ways to manage and drive safety cultures. This project takes an in-depth look into how the DuPont STOP program has been implemented in the XYZ organization. The project will outline how the program has been able to improve the safety culture, organize workplace safety audits, and institute a corrective action process that has led to improved organizational effectiveness. However, even with these programs in place, incidents and near misses still occur. Evaluations of the program will concur or decipher if the program is ineffective or if the behavior of employees plays a key role in the safety performance of the organization.

Purpose of Study

The purpose of this study is to identify how incorporating the DuPont STOP Behavior-Based Safety Training Program has improved organizational effectiveness within XYZ. To measure the program's effectiveness, we must first understand the history of behavior-based safety and its approach to organizing occupational health and safety. This section will outline the founding principles of behavior-based safety and the importance it has in driving the company's safety culture. Moreover, we will examine the XYZ DuPont STOP program and how the training process works. Lastly, we will measure the effectiveness of the program by examining if there

have been workplace hazard reductions, and reductions in worker compensation claims, and review employee survey questionnaires on the program's effectiveness.

Background and Significance

The origin of Behavior-based Safety originated in the 1930s with a man named Hubert William Heinrich (Pacaiova et al., 2013). Behavior-based safety training is a tool that originated to improve occupational health and safety within organizations. This type of training focused directly on improving employees' morale by applying behavior analysis. By understanding this model, Heinrich concluded that we could identify unsafe behavior and its causes of it. In the 1930s, Heinrich, who worked for Travelers' Insurance Company, reviewed thousands of accident reports and drew the conclusion that most accidents, illnesses, and injuries in the workplace are directly attributed to "man failures," or unsafe actions of workers (Pacaiova et al., 2013). There is a common misconception that behavior-based safety training was implemented to be driven by managers and supervisors. These people need to be actively involved in the process, but the people within the workforce drive behavior-based safety. Behavior-based safety has changed over the years, and the culture of the organization is the driving factor. Gaining employee buy-in can target specific unwanted behaviors in the workplace and foster leadership development and leads to positive change. These principles are key to establishing a safety culture that will drive positive change in an organization. The DuPont Stop program effectively outlines its approach to this by incorporating these practices.

The DuPont safety culture started early in the 1800s when the first powder mill establishment originated. In 1811, EI DuPont originated the first safety rule that stated, "Safety is a line management responsibility. No employee may enter a new or rebuilt mill until a member of top management has personally operated it" (du Pont, 1811, as cited in Leinweber, 2009, p. 2).

The idea behind this philosophy was that safety came first and upper management had added responsibilities to ensure the safety of anyone and everyone entering and working in the facility.

In the early 1900s, the DuPont Company started to keep track of its safety statistics. During the mid-1940s and 1950s the DuPont Program developed a belief (which later became their trademark slogan) that all work-related injuries and illnesses are preventable (J. Williams, personal communication, June 27, 2022). DuPont's thought behind this was no matter the situation or event, establishing preventable measures will eliminate and or remove behaviors and hazards that directly correlate to the cause of the incidents. Transitioning in the 1990s and early 2000s DuPont established a "goal of zero" meaning that organizations need to set high expectations based on employees striving to achieve the minimum requirements.

In 1938, B.F Skinner formalized an experimental study that later would apply to behavior analysis, which laid the groundwork for numerous interventions designed to improve the quality of life amongst individuals (Goldstein & Krasner, 1987). This study developed the idea that behaviors conceptualized the ideology of why people do what they do. By analyzing this information, one could begin to understand what people do, and why people do it and allow an intervention process to take place that could redirect people and remove at-risk behaviors. Research data suggests that at-risk behavior is the root cause of 85% to 90% of all workplace injuries (Krause, 1999). Behavior-based safety training sought to identify those behaviors, analyze why they occur and redirect those behaviors by replacing them with safe behaviors (Roberts & Geller, 2018). Coaching and influencing employees to do the right thing helps drive a safety culture within an organization. Developing a safety culture is critical for organizations that seek to motivate their employees to be safe on the job. The concept of Safety Culture was defined for the first time as, "The product of individual and group values, attitudes, perceptions,

competencies, and patterns of behaviors that determine the commitment to, and the style and proficiency of an organization's health and safety management" (Reiman & Rollenhagen, 2018, p. 656). Culture is not something that anyone can just implement. The process for influencing a safety culture aligns with organizational beliefs. Successful businesses that have thriving safety cultures believe in doing the right thing and being vigilant about safety. This modeled behavior sets an example and emphasizes the importance of health and safety. Culture then affects all the members of the organization, and how they see, think, feel, and act about safety. Raising awareness and setting expectations allows organizations to remove any grey areas and helps to promote impactful attitudes and behaviors.

Behavior-Based Safety ABC Model

"One of the most common misconceptions of behavior-based safety is that it disregards critical components of safety such as environmental conditions or leadership behaviors by focusing exclusively on the behaviors of an employee. However, identifying critical behavior is only the starting point" (Roberts & Geller, 2018, p. 679). A tool was developed to help understand behaviors and see what motivates people to do the things they do. The ABC model or the antecedent-behavior-consequence model establishes guidelines that outline a specific approach to behaviors. "Antecedent is described as a stimulus that comes before the behavior. The behavior is the action of the individual responding to the antecedent. Finally, the consequence is the outcome of the behavior, which can be good or bad" (Krause, 1996, p. 134). This behavior is important because it systematically outlines behavior responses to events.

The following is an example to help portray this model. Employee A walks into the facility and notices the warning sign leading to their work environment that says, "Hearing Protection Required Past This Point." This would be considered the antecedent or the motivator.

The sign is going to trigger the behavior, in which employee A will choose to either wear hearing protection or not wear hearing protection. The interesting aspect of this is the consequence. There are many reasons why employee A chooses to wear or not wear hearing protection. Does leadership not stress the importance? Are other employees not wearing hearing protection? Is the hearing protection uncomfortable or possibly unavailable? Depending on the feedback people have received in the past we can understand behavior sequence as to how people will respond to future events.

What this means is we can anticipate one's behavior by analyzing experiences that they have had in the past. To have a positive culture one hopes to obtain, we must understand the stimuli that control the positive behavior we seek. B.F. Skinner stated, "Concern for people's feelings and attitudes is reflected in antipathy toward the use of punishment (or negative consequences) to motivate behavior: The problem is to free men, not from control, but certain kinds of control" (Skinner, 1971, p. 41). Skinner (1971) goes on to state that control by negative consequences needs a reduction to increase the perception of personal freedom. Positive feedback (or consequences) motivates employees to do the right thing. People react and are motivated to display positive behavior when personal freedom is granted to them.

Personal freedom provides the foundation for inspiring motivation amongst people, employees, and the workforce. Feeling engaged and invested in a process is going to allow people to voice input and exert effort to achieve the outcome they desire. In discussing jobs and safety behavior, it was stated "Safety motivation has been defined as reflecting an individual, willingness to exert effort to enact behaviors and the balance associated with those behaviors" (Neal & Griffin, 2006, p. 949). Let us use the example of creating a standard operating procedure. Often safety professionals feel their job is to create procedures and train staff

accordingly without input from those who perform the job. If we want to inspire behavior and create structural guidelines that will foster collaborative safety culture, one needs to involve those who will be doing the job and running the equipment. Allowing involvement in procedure outlines and input provides structure to how they will respond behaviorly.

Leadership & Development Importance

Leadership and development are two very important topics when discussing the characteristics of a good safety leader and safety program. “Safety leaders are individuals who challenge their subordinates to work toward a collective goal of safety” (Wong et al., 2015, p. 85). Educating people, employees, and your workforce on the importance of safety is the first step toward developing a good *safety climate*. A safety climate is “the shared perception among employees regarding which procedures, practices, and behaviors are rewarded to support a specific performance of high-risk operations” (Zohar, 2000, p. 587). The foundation for success will be dependent on how well safety leaders can formalize the idea and concept regarding safety and its importance. This was why behavior-based safety training was developed.

DuPont STOP Program

DuPont STOP program is a behavior-based safety program that emphasizes the importance of using total observation to improve unsafe acts and unsafe behaviors (J. Williams, personal communication, June 27, 2022). Auditors accomplish this by applying the STOP observation cycle (i.e., Decide, STOP, Observe, Act, and Report) with safety audits that are performed on a routine monthly basis within the workplace. The STOP observation cycle trains auditors and staff that all injuries and work-related illnesses are preventable (J. Williams, personal communication, June 27, 2022). This training is broken up into individual units that educate supervisors and staff on basic safety awareness principles and the importance of being

proactive instead of reactive. The training program consists of (1) STOP for Supervisors, (2) STOP for Each Other, and (3) STOP Data Pro.

Starting with STOP for Supervisor training, Unit 1 introduces the supervisors to the importance of creating an injury-free workplace (J. Williams, personal communication, June 27, 2022). This is done by eliminating hazards from the work environment. It also discusses the importance of developing safety standards and setting expectations of high as employees will strive to achieve the minimum standards (J. Williams, personal communication, June 27, 2022).

Unit 2 moves on to discuss the importance of seeing safety. The whole program is predicated on the importance of seeing safety, but this unit primarily focuses on the importance of observing for PPE, which is done by using total observation. DuPont defines total observation as the ability to use your senses, sight, hearing, smell, and touch to ensure a situation is safe (J. Williams, personal communication, June 27, 2022).

Unit 3 moves into applying your mind's eye in situations that involve positions of people and how people are using tools and equipment. DuPont defines your mind's eye as the ability to visualize how you or a co-worker will do a job before you perform the task to see what could happen if something unexpected occurs (J. Williams, personal communication, June 27, 2022). By seeing safety and being proactive it allows the organization to implement continuous improvement initiatives to help reduce costs, improve standard compliance, prevent workplace injuries, engage the workforce, and enhance employee responsibilities by providing attainable goals.

Unit 4 transitions into preventative actions. By discussing underlying causes Unit 4 helps to highlight the root cause analysis and discuss ways to prevent actions, behaviors, or situations from occurring inside the work environment. This is constructed by having general safety

discussions while doing observations. The four steps DuPont created in engaging in general safety discussion are as follows:

1. observe and then get the employee's attention
2. start with a positive comment
3. engage the employee in discussions about the job they are doing
4. thank the employee for their time (J. Williams, personal communication, June 27, 2022)

This practice allows the employee to talk freely about the job and allows their auditor (supervisor) to discuss issues or possible deficiencies with a task or procedure.

Unit 5 is the final training unit, which will discuss conducting formal safety observations and comparing them to working conditions and standard work procedures. The unit also trains auditors to understand that the actions of employees/people can create safe and unsafe working conditions.

STOP for Each other training mirrors STOP for Supervisor training and builds these same principles into general learning meetings that help employees understand the auditing process while working inside of the facility. The training will help employees focus on personal safety, observing workplace hazards, and auditing their work areas and peers to ensure they are working safely (J. Williams, personal communication, June 27, 2022).

DuPont STOP Data Pro is a secure web-based application accompanied by a mobile app that makes it easy to record and analyze safety performance data (J. Williams, personal communication, June 27, 2022). The information provided is from safety audits conducted inside the facility and analyzed for continuous improvement measures. The safety audit checklist is set up to review the following areas:

- reactions of people
- positions of people
- PPE check
- tools & equipment (actions)
- tools & equipment (conditions)
- procedures
- work area & structures
- environment

Definitions of Terms

Following are the definitions of key terms used throughout the study.

ABC Model

The ABC model is a technical analysis to help understand behaviors and see what motivates people to do the things they do (Krause, 1996).

Antecedent

Antecedent is described as stimuli that come before the behavior (Krause, 1996).

Behavior

Behavior is the action of the individual responding to the antecedent (Krause, 1996).

Consequence

Consequence is the outcome of the behavior can be good or bad (Krause, 1996).

DuPont STOP Training

DuPont STOP Training is a behavior-based safety program that emphasizes the importance of using total observation to improve unsafe acts and unsafe behaviors (J. Williams, personal communication, June 27, 2022).

Mind's Eye

Mind's eye is the ability to visualize how you or a co-worker will do a job before you perform the task to see what could happen if something unexpected occurs (J. Williams, personal communication, June 27, 2022).

Safety Climate

Safety climate is the shared perception among employees regarding which procedures, practices, and behaviors support a specific performance of high-risk operations (Zohar, 2000).

Safety Culture

Safety culture is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviors that determine the commitment to, and the style and proficiency of an organization's health and safety management (Reiman & Rollenhagen, 2018).

Safety Motivation

Safety motivation is the willingness to exert effort to enact behaviors and the valance associated with those behaviors (Neal & Griffein, 2006).

Total Observation

Total observation is the ability to use your sense of sight, hearing, smell and touch to ensure a situation is safe (J. Williams, personal communication, June 27, 2022).

Limitations of study

A limitation of this study is that only 30 employees responded to the survey analysis. The company employs close to 275 employees, yet only 30 (11%) employees choose to return the survey.

Methodology

The purpose of this study is to identify how incorporating the DuPont STOP Behavior-Based Safety-Training Program has improved organizational effectiveness within XYZ. To

accomplish these objectives, on April 25, 2022, employees were provided the option to answer survey questions regarding their beliefs in the safety program at XYZ. In addition, workplace analysis performed was in specific areas of the facility to review the safety programs' effectiveness.

Survey

A list of questions was constructed to target specific aspects of the behavior-based safety program and whether it has effects on the organizations. To test the hypothesis, research needed to be conducted to observe the working conditions as well as review trend analysis of working areas in the organization. The prepping area (i.e., pre-batch), processing area (i.e., cook room), and production areas (i.e., bottling line 7) received an evaluation for workplace hazards. The goal is to illustrate whether these areas see a correlation with hazard reduction in the workplace. In addition, we will also review statistical data for workers' compensations and any dividends XYZ received.

The workplace trend analysis, workers' compensation payments, incident rates, and insurance dividend refund payments are highlighted from the years 2019, 2020, and 2021 (starting with 2019 due to DuPont DATA PRO being added to the behavior-based safety program at the company). All other observations/information were collected during regular working hours when associates were performing daily routine tasks. Based on those observations, questions regarding the effectiveness and if the program prevents injuries from happening were asked.

Participants

Thirty production associates within XYZ participated in the survey questioning the overall effectiveness of the DuPont STOP Behavior-Based Safety Training Program. The general

hypothesis is that associates would agree that the behavior-based safety program (i.e., DuPont STOP) works at mitigating hazards and increases safety awareness when working

Procedure

All participants received the following questions/statements, which were scored on a 5-point scale:

1. Does our DuPont STOP Program effectively manage workplace hazards?
2. Do you feel our STOP audits help prevent workplace injuries?
3. Our main contributor to workplace incidents is due to complacency and employee morale.
4. Our DuPont STOP Program should be incorporated as part of new hire training?
5. While working I am always thinking about our basic STOP Principals?

Data Collection Process

The survey was facilitated by the safety manager of the facility by putting the survey questions outside of his office in a drop box, asking employees who would like to participate in the survey to answer the questions and submit them in the drop box. This would give every employee who works weekdays and weekends the chance to participate in the survey if they choose to.

Data Analysis

The analysis of the workplace audits from the years 2019, 2020, and 2021 are charted through the company's audit & inspection program STOP Data Pro. The survey results have been completed and charted through excel bar graphs. A summary of both the workplace analysis and survey analysis is available for review in Chapter II.

Example of Auditing Methods

Safety audits are conducted monthly for all areas inside the facility. At the beginning of each quarter, the Safety & Training Manager sets up STOP audit teams that consist of two to three individuals that have been trained in the program. STOP teams will then conduct their audits and enter their findings into our tracking system (i.e., STOP Data Pro). The information obtained from these audits is tracked and trended for both continuous improvement opportunities as well as preventative action measures. Below is a list of audit ID numbers, along with dates where the area (i.e., bottling general) in the plant has been inspected for work environment issues, housekeeping standards, PPE, ergonomics/positions of people, procedures, reactions of people, tools, and equipment, and work area/structures:

- Audit 3255 4/13/2021
- Audit 3263 4/21/2021
- Audit 3272 4/30/2021
- Audit 3281 5/11/2021
- Audit 3298 5/30/2021
- Audit 3313 6/12/2021
- Audit 3316 6/14/2021
- Audit 3318 6/15/2021
- Audit 3319 6/16/2021
- Audit 3333 6/30/2021
- Audit 3340 7/13/2021
- Audit 3341 7/14/2021
- Audit 3354 7/16/2021

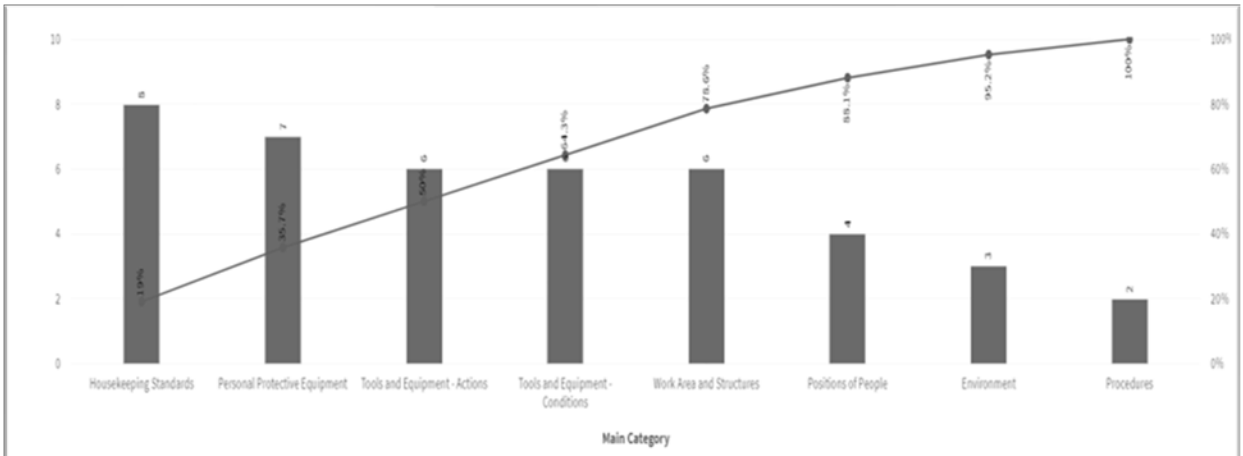
During Audit 3316, which took place on 6/14/2021, a STOP audit team observed a non-conformity that a parts cart had been placed in front of a fire extinguisher/emergency exit leading out of the plant (procedure non-compliance). Corrective action was submitted, and the STOP team resolved this issue immediately.

Chapter II: Results and Workplace Trend Analysis Discussion

Figure 1 illustrates all the unsafe conditions/acts that were reported in 2019 for the cook room. In 2019, 42 unsafe conditions/acts were reported during STOP audits. housekeeping standards accounted for 19% (8), PPE accounted for 16% (7), tools & equipment accounted for 14% (6), work areas and structures accounted for 14% (6), and positions of people accounted for 9% (4), environment accounted for 7% (3), and procedure compliance accounted for 4% (2) of the unsafe count for 2019.

Figure 1

2019 Workplace Trend Analysis – Cook Room

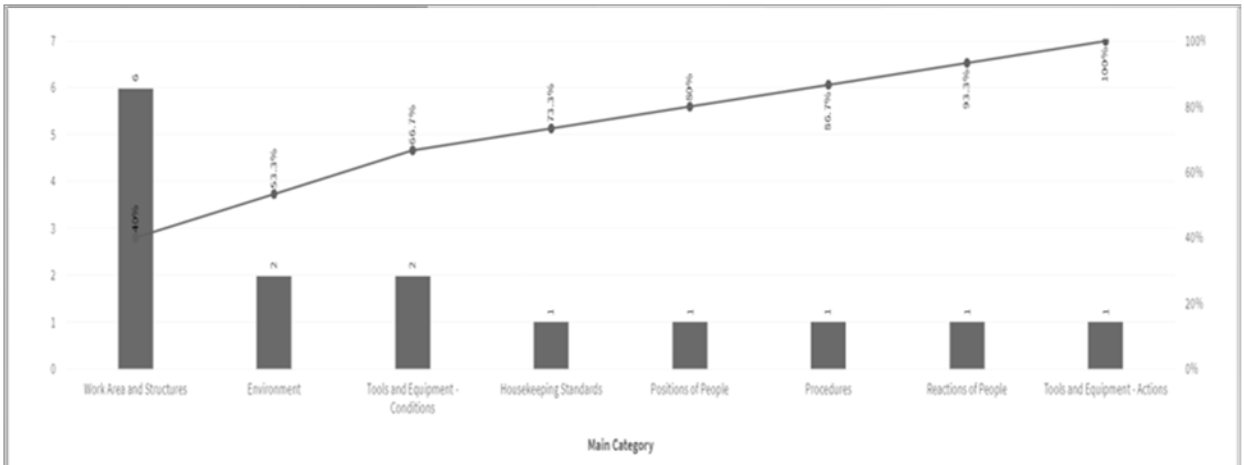


Main Category	Unsafe Count
Housekeeping Standards	8
Personal Protective Equipment	7
Tools and Equipment - Actions	6
Tools and Equipment - Conditions	6
Work Area and Structures	6
Positions of People	4
Environment	3
Procedures	2
2019 Year Total Unsafe Count	42

Figure 2 illustrates all the unsafe conditions/acts that were reported in 2020 for the Cook Room. In 2020, 15 unsafe conditions/acts were reported during STOP audits. This is a 64% reduction from the year 2019. work areas and structures accounted for 40% (6), environment accounted for 13% (2), tools & equipment – conditions accounted for 13% (2), housekeeping standards accounted for 6% (1), reactions of people accounted for 6% (1), and tools & equipment – actions accounted for 6% (1) for the unsafe count for 2020.

Figure 2

2020 Workplace Trend Analysis – Cook Room

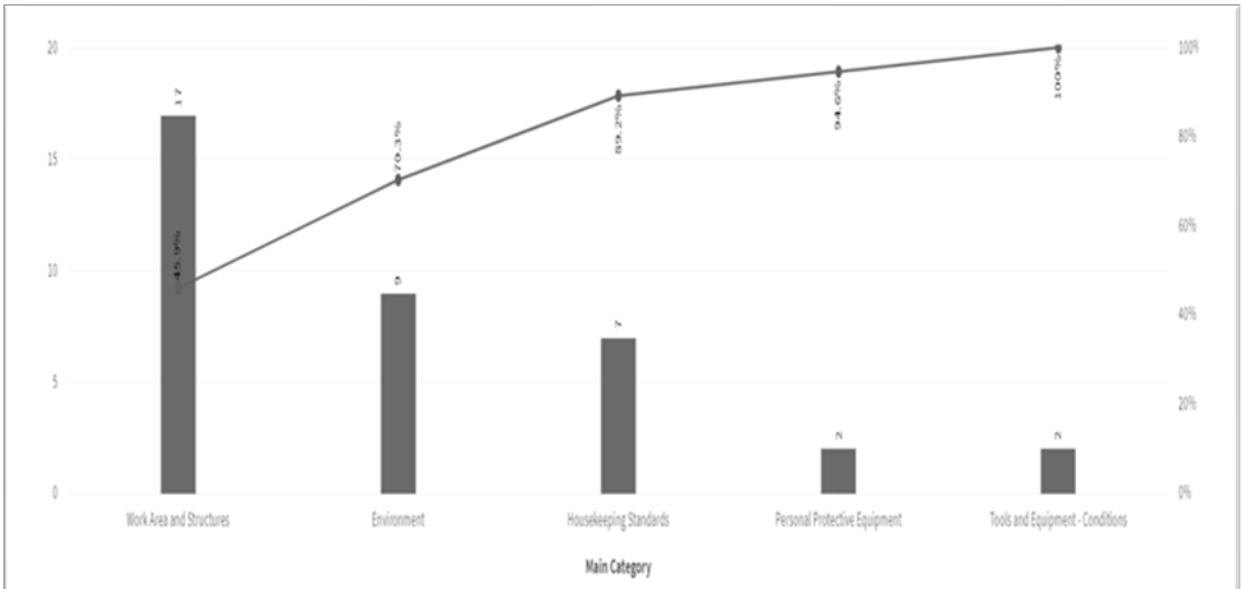


Main Category	Unsafe Count
Work Area and Structures	6
Environment	2
Tools and Equipment - Conditions	2
Housekeeping Standards	1
Positions of People	1
Procedures	1
Reactions of People	1
Tools and Equipment - Actions	1
2020 Year Total Unsafe Count	**15**

Figure 3 illustrates all the unsafe conditions/acts that were reported in 2021 for the Cook Room. In 2021, 20 unsafe conditions/acts were reported during STOP audits. This is a 52% reduction from the year 2019 and a 12% increase from the year 2020. Work Areas & structures accounted for 50% (10), environment accounted for 25% (5), PPE accounted for 10% (2), tools & equipment – conditions accounted for 10% (2), and Housekeeping Standards accounted for 5% (1) of the unsafe count for 2021.

Figure 3

2021 Workplace Trend Analysis – Cook Room

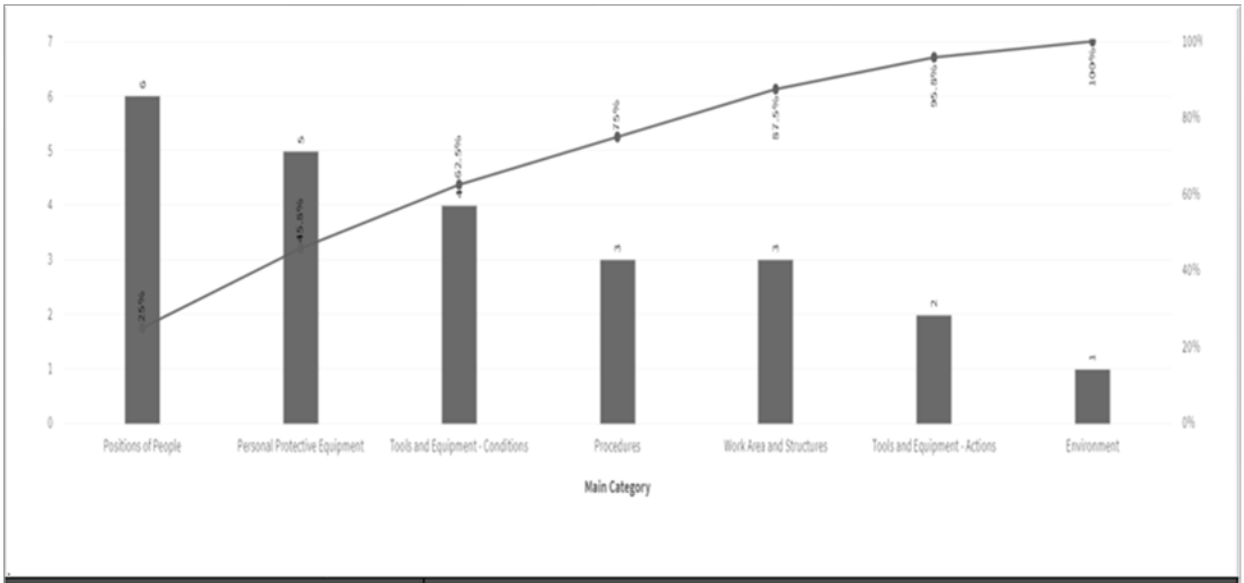


Main Category	Unsafe Count
Work Area and Structures	10
Environment	5
Housekeeping Standards	1
Personal Protective Equipment	2
Tools and Equipment - Conditions	2
2021 Year Total Unsafe Count	**20**

Figure 4 illustrates all the unsafe conditions/acts that were reported in 2019 for the Pre-Batch Area. In 2019, 24 unsafe conditions/acts were reported during STOP audits. Positions of people accounted for 25% (6), PPE accounted for 21% (5), tools & equipment – conditions accounted for 16% (4), procedure compliance accounted for 13% (3), work areas & structures accounted for 13% (3), tools & equipment – actions accounted for 8% (2), and environment conditions accounted for 4% (1) of the unsafe count for 2019.

Figure 4

2019 Workplace Trend Analysis – Pre-Batch

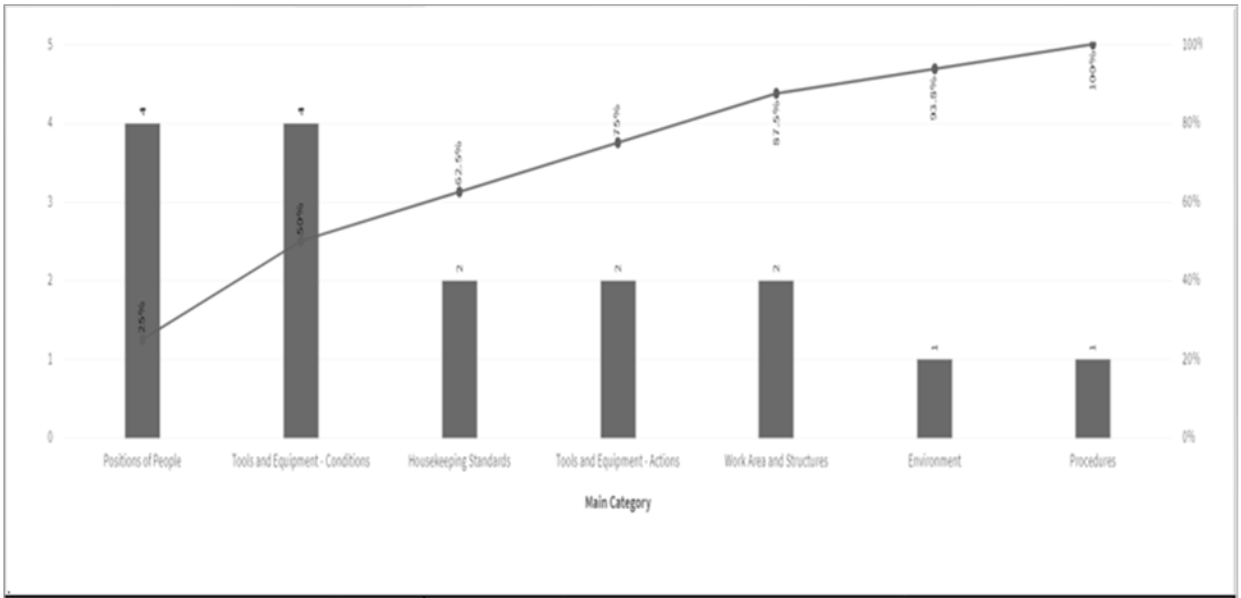


Main Category	Unsafe Count
Positions of People	6
Personal Protective Equipment	5
Tools and Equipment - Conditions	4
Procedures	3
Work Area and Structures	3
Tools and Equipment - Actions	2
Environment	1
2019 Pre-Batch Total Unsafe Count	**24**

Figure 5 illustrates all the unsafe conditions/acts that were reported in 2020 for the Pre-Batch area. In 2020, 16 unsafe conditions/acts were reported during STOP audits. This is a 33% reduction from the year 2019. Positions of people accounted for 25% (4), tools & equipment-conditions accounted for 25% (4), housekeeping standards accounted for 12.5% (7), tools & equipment – actions accounted for 12.5% (2), environmental conditions accounted for 6.25% (1), and procedure compliance accounted for 6.25% (1) of the unsafe count for 2020.

Figure 5

2020 Workplace Trend Analysis – Pre-Batch

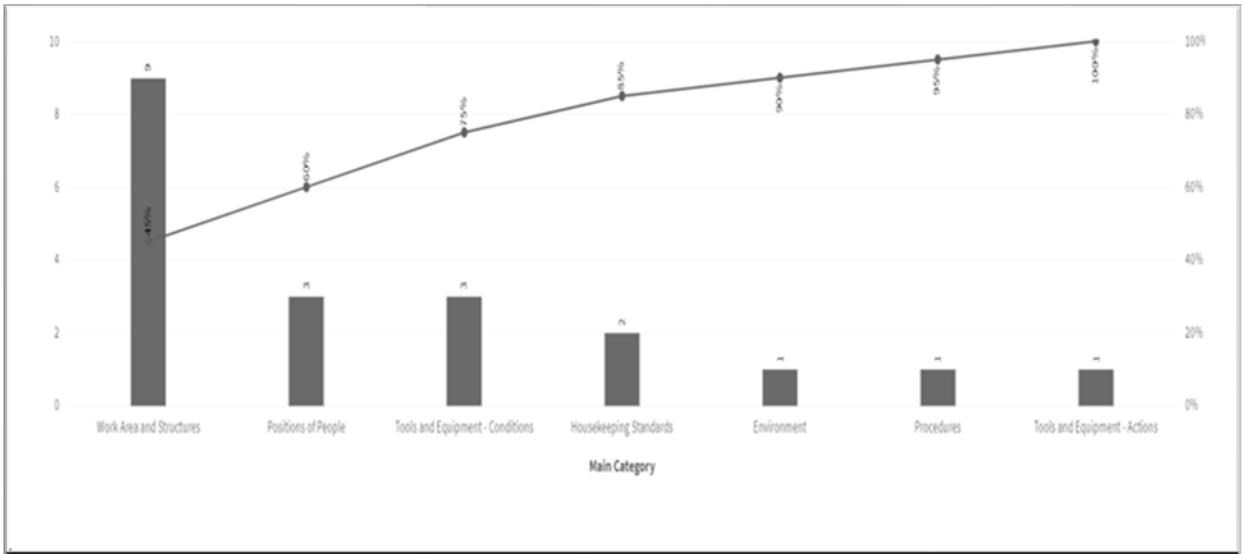


Main Category	Unsafe Count
Positions of People	4
Tools and Equipment - Conditions	4
Housekeeping Standards	2
Tools and Equipment - Actions	2
Work Area and Structures	2
Environment	1
Procedures	1
2020 Pre-Batch Total Unsafe Count	**16**

Figure 6 illustrates all the unsafe conditions/acts that were reported in 2021 for the Pre-Batch area. In 2021, 20 unsafe conditions/acts were reported during STOP audits. This is a 16% reduction from 2019 and a 17% increase from 2020. Work areas & structures accounted for 45% (9), positions of people accounted for 15% (3), tools & equipment – conditions accounted for 15% (3), housekeeping standards accounted for 10% (2), environmental conditions accounted for 5% (1), procedure compliance accounted for 5% (1), and tools & equipment – actions accounted for 5% (1) of the unsafe count for 2021.

Figure 6

2021 Workplace Trend Analysis – Pre-Batch

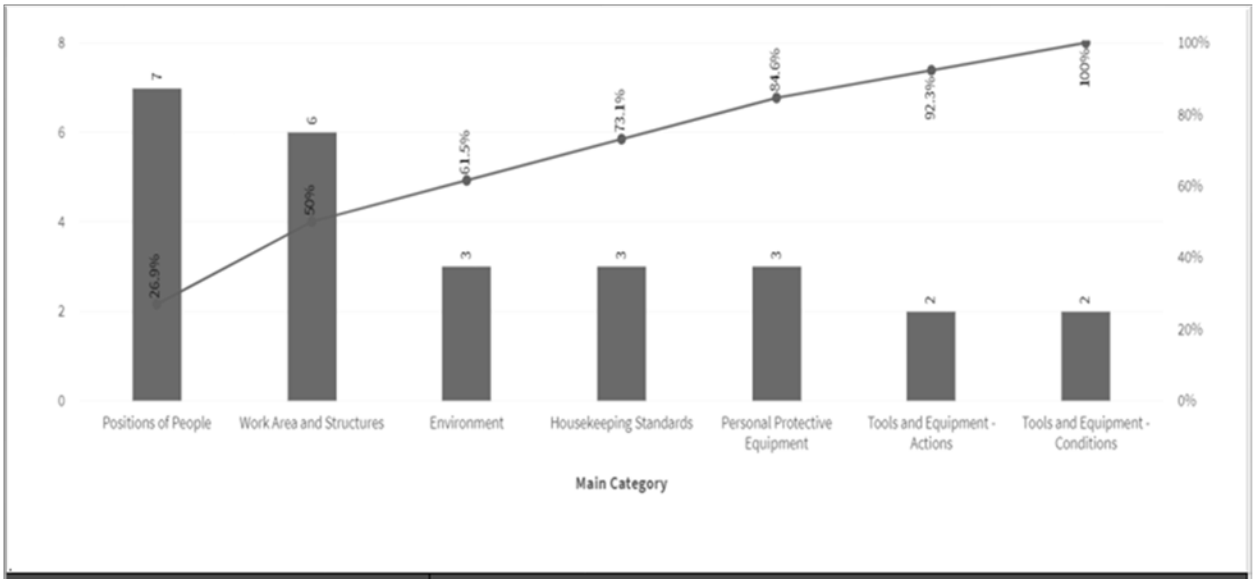


Main Category	Unsafe Count
Work Area and Structures	9
Positions of People	3
Tools and Equipment - Conditions	3
Housekeeping Standards	2
Environment	1
Procedures	1
Tools and Equipment - Actions	1
2021 Pre-Batch Total Unsafe Count	**20**

Figure 7 illustrates all the unsafe conditions/acts that were reported in 2019 for Bottling Line 7. In 2019, 26 unsafe conditions/acts were reported during STOP audits. Positions of people accounted for 27% (7), work areas & structures accounted for 23% (6), environmental conditions accounted for 12% (3), housekeeping standards accounted for 12% (3), PPE accounted for 12% (3), tools & equipment – actions accounted for 7% (2), and tools & equipment – conditions accounted for 7% (2) of the unsafe count for 2019.

Figure 7

2019 Workplace Trend Analysis – Bottling Line #7

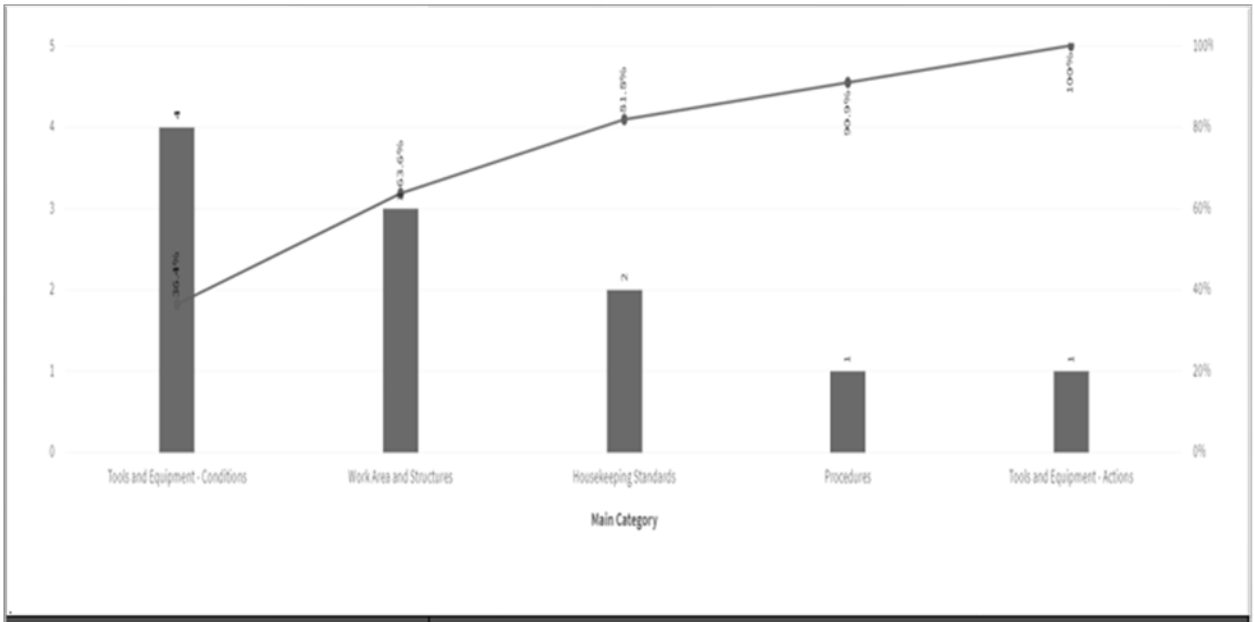


Main Category	Unsafe Count
Positions of People	7
Work Area and Structures	6
Environment	3
Housekeeping Standards	3
Personal Protective Equipment	3
Tools and Equipment - Actions	2
Tools and Equipment - Conditions	2
2019 Bottling Line #7 Total Unsafe Count	**26**

Figure 8 illustrates all the unsafe conditions/acts that were reported in 2020 for Bottling Line 7. In 2020, 11 unsafe conditions/acts were reported during STOP audits. This is a 58% reduction from the unsafe count from 2019. Tools & equipment – conditions accounted for 36% (4), work area & structures accounted for 27% (3), housekeeping standards accounted for 18% (2), procedure compliance accounted for 9.5% (1), and tools & equipment – actions accounted for 9.5% (1) of the unsafe count for 2020.

Figure 8

2020 Workplace Trend Analysis – Bottling Line #7

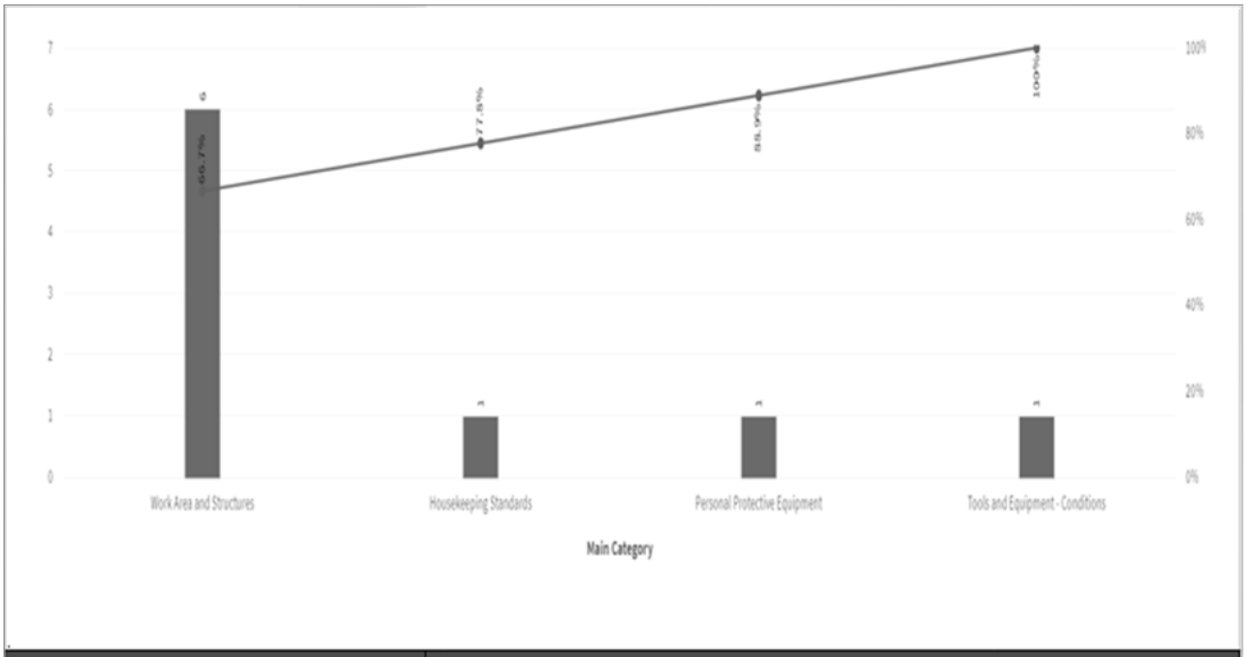


Main Category	Unsafe Count
Tools and Equipment - Conditions	4
Work Area and Structures	3
Housekeeping Standards	2
Procedures	1
Tools and Equipment - Actions	1
2020 Bottling Line #7 Total Unsafe Count	**11**

Figure 9 illustrates all the unsafe conditions/acts that were reported in 2021 for Bottling Line 7. In 2021, 9 unsafe conditions/acts were reported during STOP audits. This is a 65% reduction from 2019 and an 18% reduction from 2020. Work areas & structures accounted for 67% (6), housekeeping standards accounted for 11% (1), PPE accounted for 11% (1), and tools & equipment conditions accounted for 11% (1) of the unsafe count for 2021.

Figure 9

2021 Workplace Trend Analysis – Bottling Line #7



Main Category	Unsafe Count
Work Area and Structures	6
Housekeeping Standards	1
Personal Protective Equipment	1
Tools and Equipment - Conditions	1
2021 Bottling Line #7 Total Unsafe Count	**9**

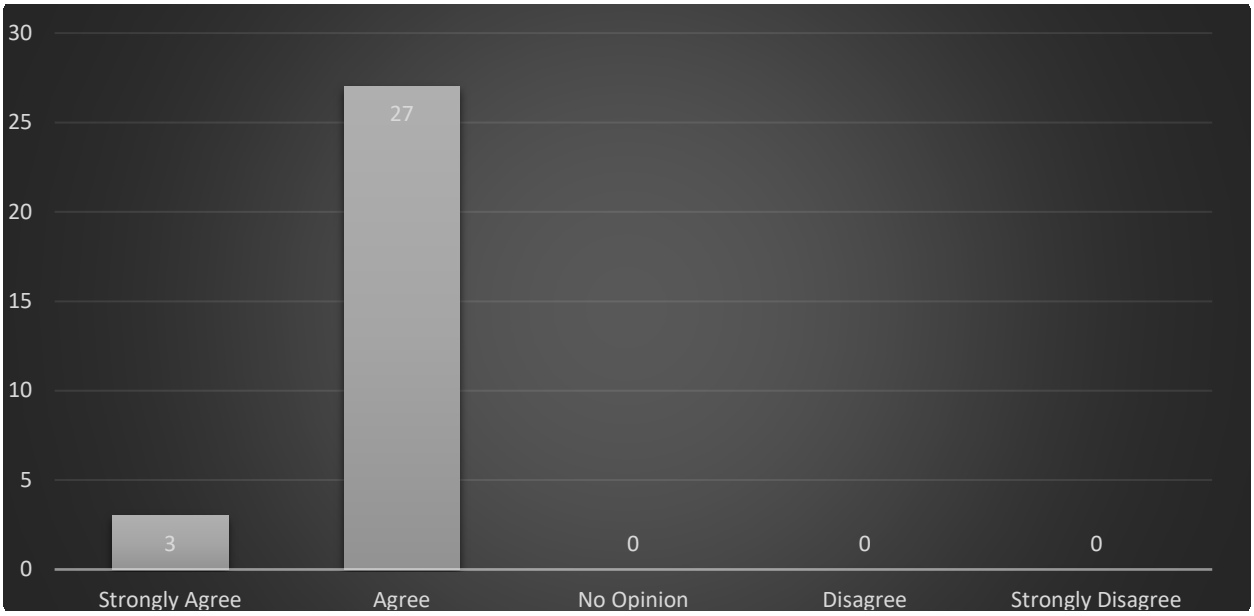
Survey Analysis

When conducting the survey analysis, Chart 1 illustrated the following: 30 employees responded to the survey discussing how effective the behavior-based safety program is at XYZ. Question 1 asked, “Does our DuPont STOP program effectively manage workplace hazards?”

The employees agreed 100% that it does help manage workplace hazards. Ten percent strongly agreed (3) and 90% agreed (27).

Chart 1

Does Our DuPont Stop Program Effectively Manage Workplace Hazards?



The survey analysis also asked employees, “Do you feel our STOP Audits help prevent workplace injuries from occurring?” The responses suggested that 30% (9) of employees strongly agreed that STOP audits help prevent workplace injuries. Another 50% (15) of the employees agreed that STOP audits help and 10% (3) had no opinion on the matter. The survey did show that 10% (3) of employees disagreed with that question (see Chart 2).

Chart 2

Do You Feel Our STOP Audits Help Prevent Workplace Injuries From Occurring?

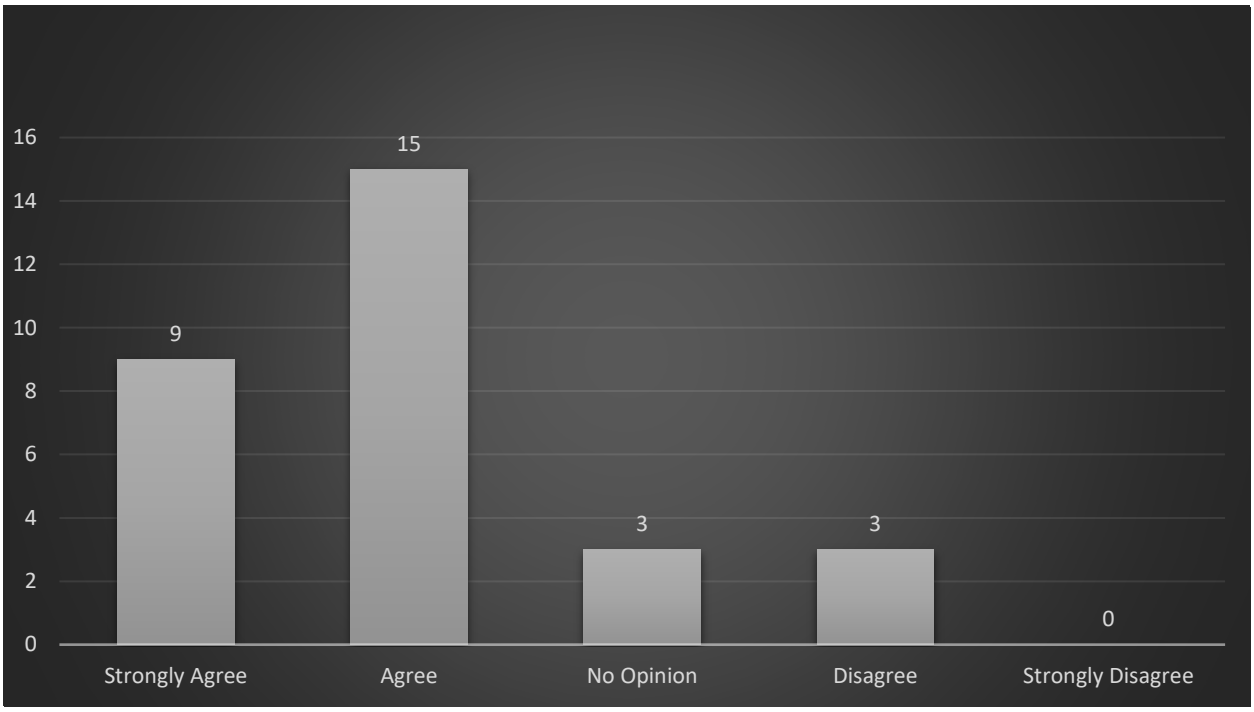


Chart 3 illustrates employees when asked, “Our main contributor to workplace incidents is due to complacency and employee morale?” The responses suggested that 20% (6) of employees strongly agreed with that statement. Another 60% (18) agreed that this was also true and 20% (6) had no opinion on the matter.

Chart 3

Our Main Contributor to Workplace Incident is Due to Complacency and Employee Moral?

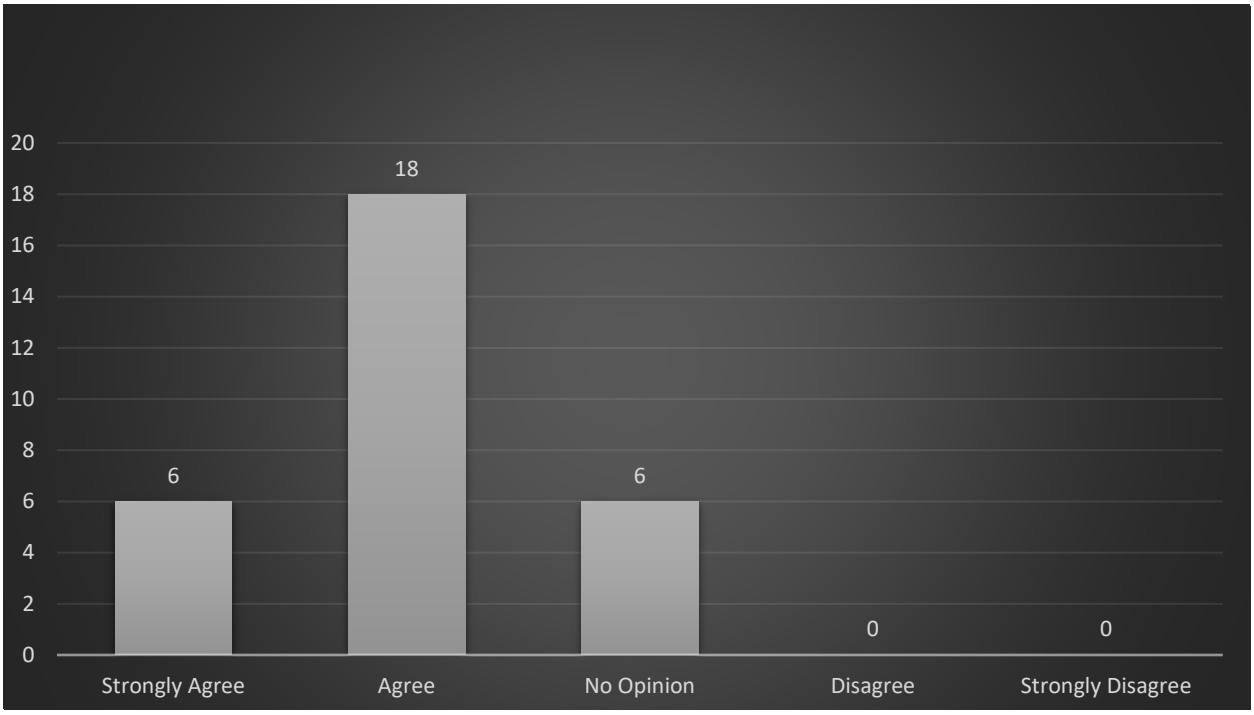


Chart 4 illustrates responses from asking employees the following question, “Should our DuPont STOP program be incorporated as part of New Hire Training?” Responses showed that 100% of employees feel this should be incorporated with New Hire Training with 30% (9) strongly agreeing and 70% (21) agreeing with that statement. There was a consistent message made on the survey, in which employees stated they feel incorporating this would help facilitate the training process on the program and educate the employees on company standards.

Chart 4

Our DuPont Program Should be Incorporated as Part of New Hire Training?

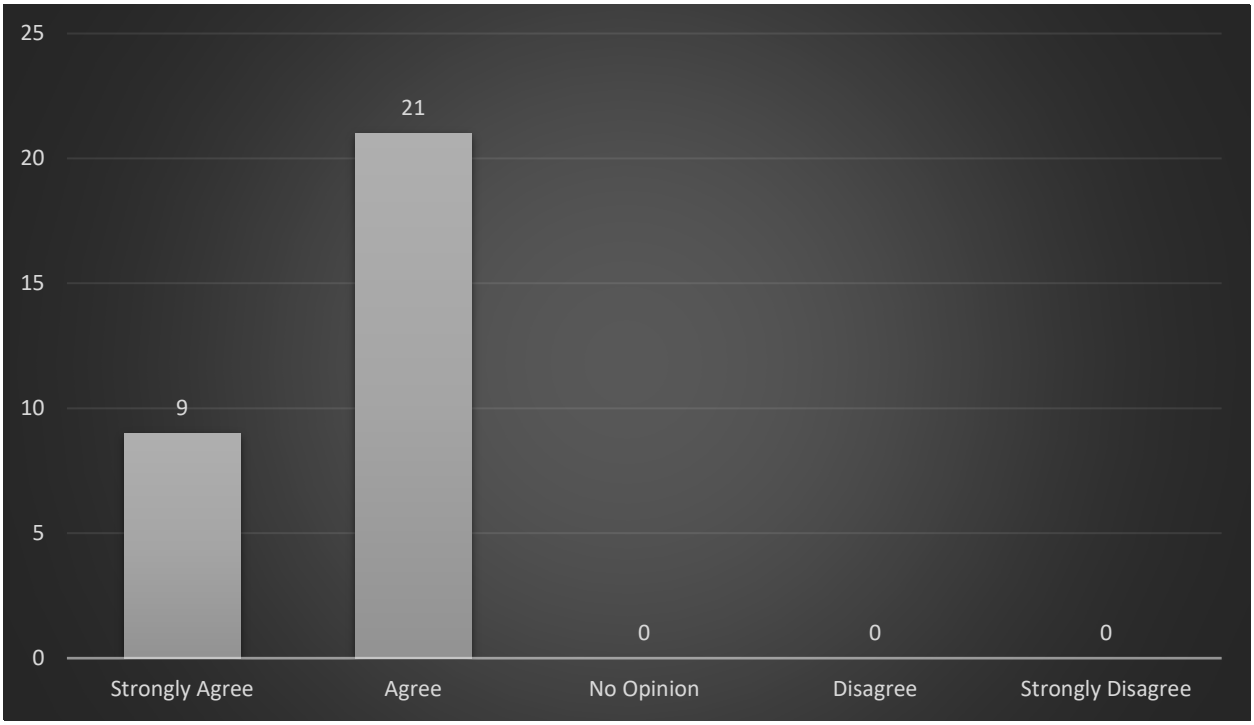


Chart 5 illustrates responses to survey questions, “While working I am always thinking about basic STOP principles”? The survey responses showed that 30% (9) of employees strongly agreed with that statement. The responses also showed that 50% (15) agreed with that statement, as well as 10% (3) who had no opinion and 10% (3) who disagree. Employees who disagreed noted the following: “Our job is the production and performing essential job tasks.”

Chart 5

While Working I am Always Thinking About Our Basic STOP Principals?

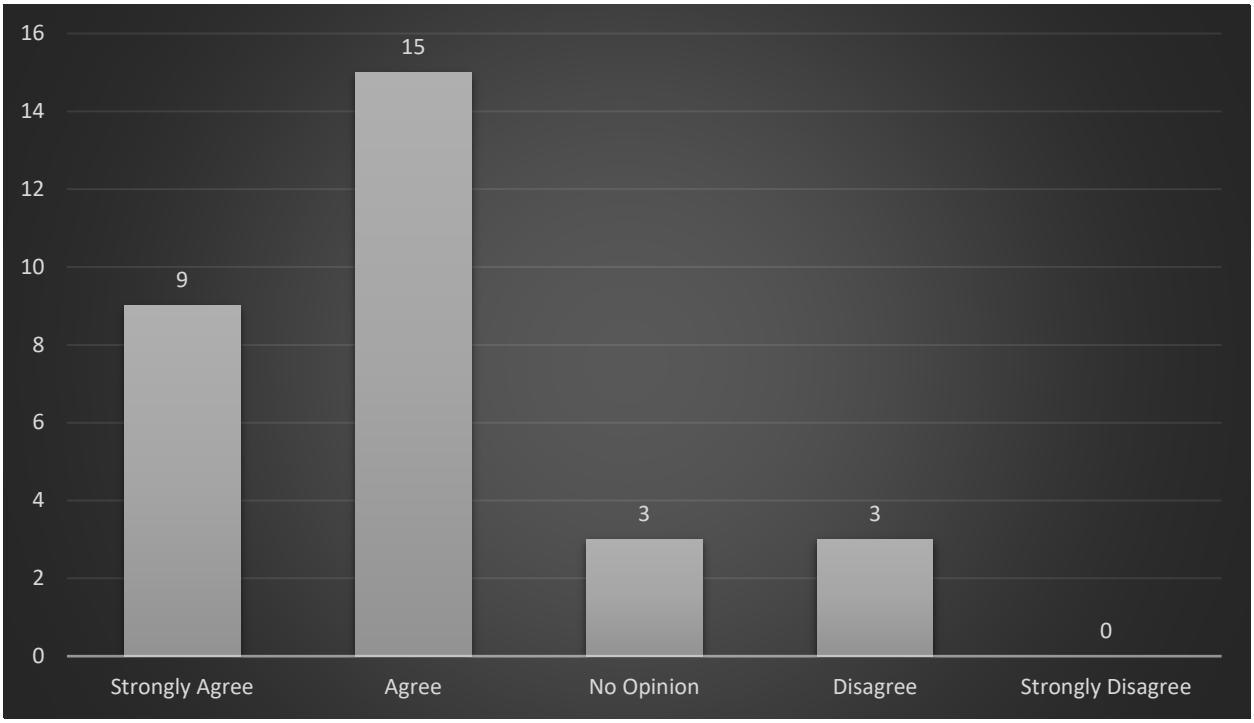
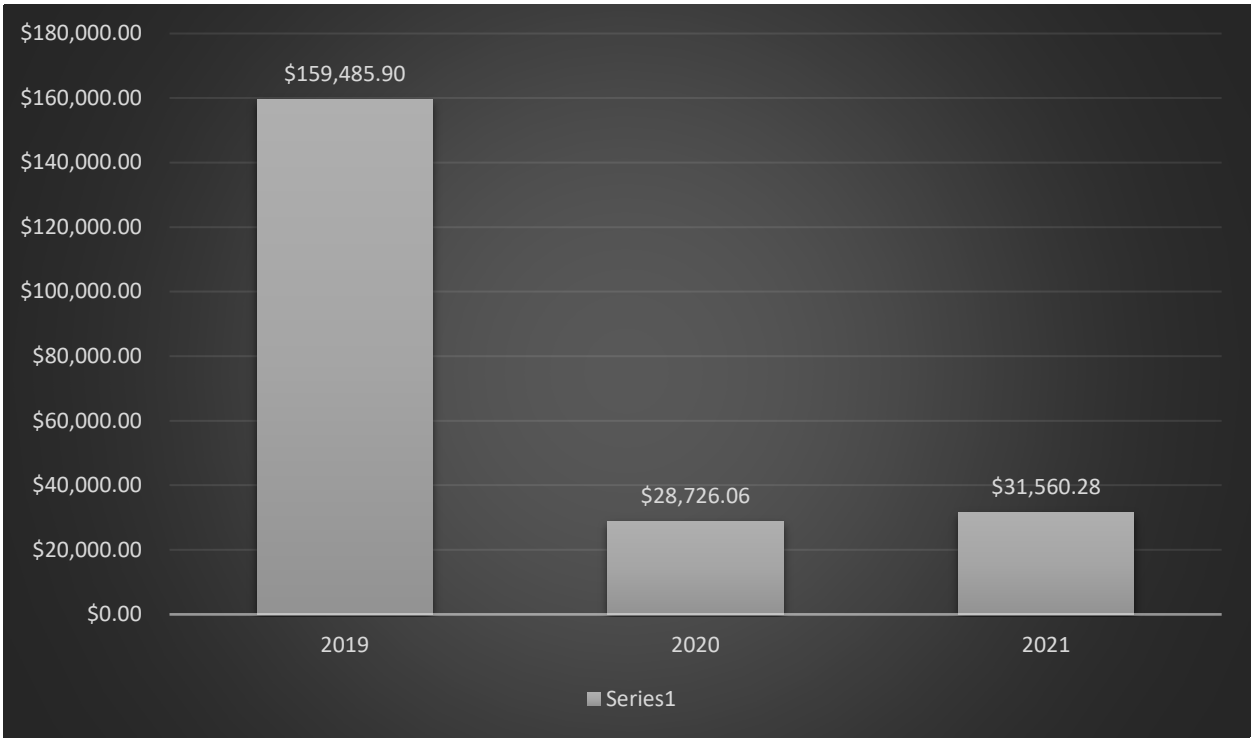


Chart 6 illustrates worker compensation payments from 2019-2021. To assess the organizational effectiveness, workers' compensation payments required review to evaluate if there are correlations between program effectiveness and cost reductions. In 2019, XYZ paid $159,485.90 in worker compensation payments. In 2020, XYZ paid $28,726.06, which turns into a $130,759.84 reduction in claim payments. In 2021, XYZ paid only $31,560.28, which is a $127,925.62 reduction in claim payments from 2019.

Chart 6

Work Comp Dollars 2019-2021



XYZ does participate in a worker's compensation dividend plan. This type of plan allows employers to receive financial compensation from the insurer based on performance (claim reductions, cost reductions, etc.) For example, an insurer could pay a certain percentage back to the employer based on the yearly premiums and how much of that premium gets used on claims throughout the year. When reviewing the years 2019, 2020, and 2021 we can see that 2019 XYZ did not receive any dividend payments. In 2020, XYZ performed very well and received a dividend payment of $20,085.28. In 2021, XYZ performed exceptionally and received a dividend payment of $70,175.56 (see Chart 7).

Chart 7

Work Comp Insurance Dividend Payments Back to XYZ 2019-2021

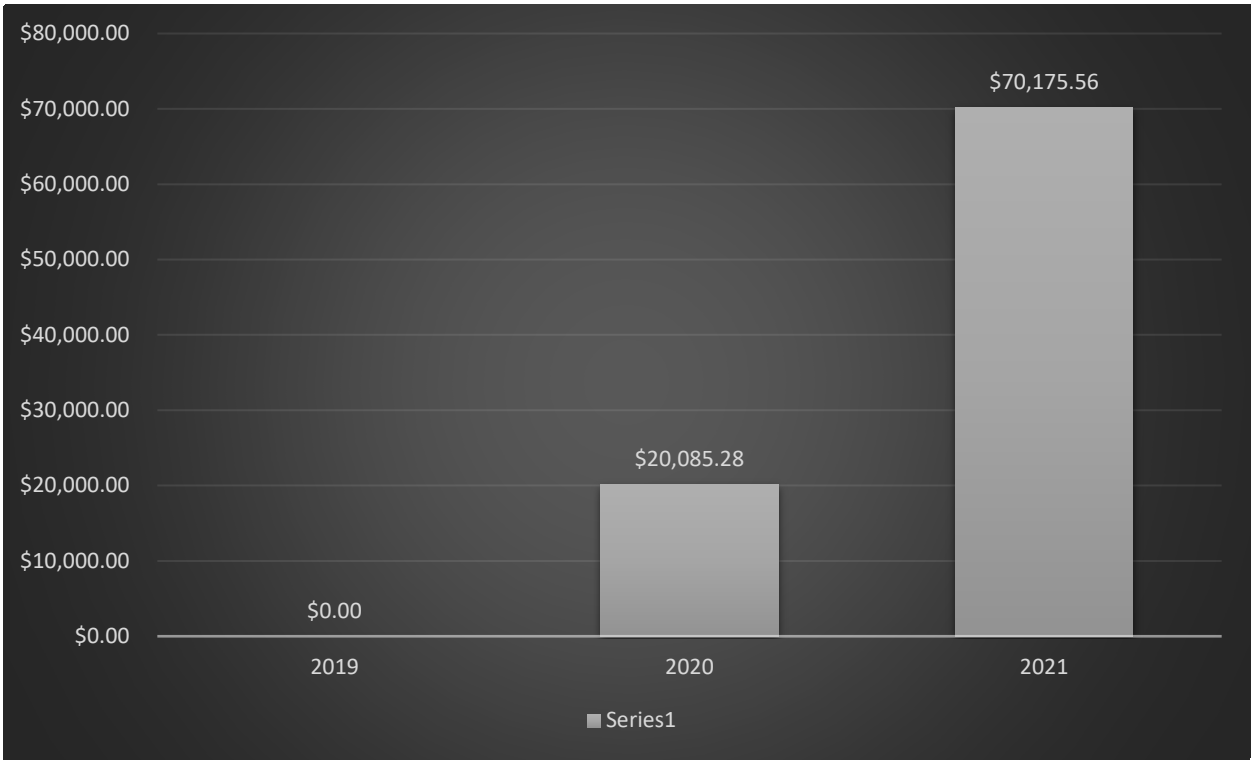
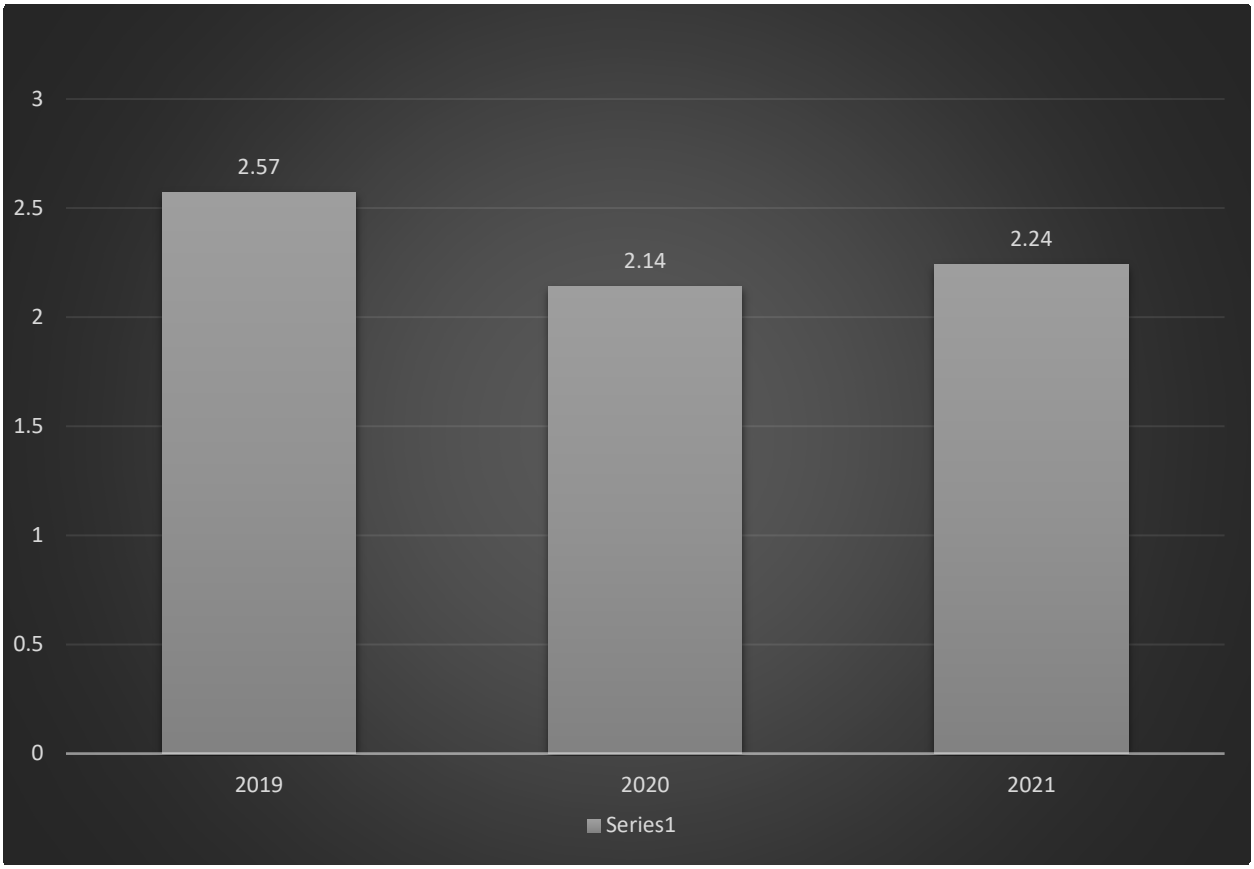


Chart 8 illustrates XYZ Incident Rates from 2019-2021. To assess the organizational effectiveness, the company's incident rates review to evaluate if there are correlations between program effectiveness and incident rate reductions. In 2019, XYZ maintained a 2.57 incident rate. In 2020, XYZ maintained a 2.14 incident rate, which is a reduction from 2019. XYZ continued to see a reduction from 2019 noting a 2.24 incident rate in 2021.

Chart 8

Incident Rates 2019-2021



Analysis & Discussion

There was one main purpose of this study: to analyze organizational effectiveness and confirm or decipher behavior-based safety training programs and their positive effects on organizations. To complete these objectives, we took an in-depth look at XYZ Behavior Based Safety Program and the implementation process through the company. Specifically, data was collected from prepping areas (i.e., Pre-Batch), processing areas (i.e., Cook Room), and production areas (i.e., Bottling Line 7) of the plant for workplace trend analysis. This allowed us to validate if the organization improved in eliminating workplace hazards. Additionally, survey

analysis questionnaires that employees returned to the Safety Manager were charted to review employee engagement and support for the behavior-based safety program.

Workplace Trend Analysis Review

In 2019, XYZ has seen some of the highest numbers of unsafe conditions/acts in the workplace (i.e., Cook Room - 42, Pre-Batch - 24, and Bottling Line #7 - 26). As the company moved into 2020, it has seen great success with DuPont's DATA Pro program's ability to trend unsafe conditions/acts and reduce reoccurrences. In 2020, XYZ saw a 51.6% reduction in unsafe conditions/acts inside of the areas audited for this study (i.e., Pre-Batch – 64% reduction, Cook Room – 33% reduction, and Bottling Line #7 – 59% reduction). XYZ continued to see success with the program in 2021 noting a 44% reduction in unsafe conditions/acts from 2019.

Translating the hazard reductions into how the company improved organizational effectiveness is easy to see. Figure 6 reviewed workers' compensation payments from 2019-2021. In 2019, XYZ paid out $159,485.90 in worker compensation payments. Transitioning into 2020, XYZ reduced that number to $28,726 and received a dividend payment of $20,085 shown in (see Figure 7). This trend also continued into 2021 as the organization only paid $31,560.28 in worker compensation payments and received a dividend payment of $70,175 (see Chart 7). The reduction in injury costs is directly linked back to the workplace hazard reductions that were discussed between information analyzed from Pre-Batch, Cook Room, and Bottling Line 7. In addition, XYZ established a reduction in its incident rates from 2019 to 2021 (i.e., 2019 – 2.57, 2020 – 2.21, and 2021 – 2.24) as shown in Figure 8.

Survey Analysis Review

Thirty surveys were returned during this study, which is roughly 11% of the workforce for XYZ. Most of the employees concluded that the DuPont STOP Program is effective in

managing unsafe conditions/acts. Nearly 100% of employees who returned surveys agreed when asked, “Does our DuPont STOP program effectively manage workplace hazards.” This perhaps is the greatest achievement of this study because the employees believe and validate the program’s overall effectiveness.

Furthermore, when asked, “Do you feel our STOP Audits help prevent workplace injuries,” employees again showed support noting 80% either strongly agreed or agreed with that question. Employees who disagreed with that question stated, “regardless of what we do, certain employees who do not value their safety or others’ safety will continue to get hurt on the job no matter the policy or procedures that are in place.” This relates to Chapter II, when we discussed behavior analysis and how employees understand the rules and regulations but behaviorly choose to disregard them.

Another area where employees showed 100% support was when asked, “Should our DuPont STOP program be incorporated into employee New Hire Training?” Currently, XYZ states that full-time new hires will go through STOP training within 12 months of hire. The employees noted during the survey analysis that this creates deficiencies and allows unwanted behaviors. To improve the training process, employees should be trained during new hire training, so they know and understand company standards and expectations.

Discussion

Referring to the information provided in Chapter II, a behavior-based safety training program require employees of the organizations to drive the program. This includes the development of the program and any/all changes or modifications to it. Information that has been gathered both from the workplace analysis along with survey analysis shows significant support for the program. Workplace hazards have reduced substantially since DuPont STOP Data Pro

implementation, leading to lower incident rates, reduced costs, and improved culture. The results from the survey analysis show overwhelming support for the program based on those who responded. There are limitations to the survey, only 30 employees responded to the study, and XYZ employees 275 currently (about 11% of employees responded).

Chapter III: Conclusion and Recommendations

The purpose of this study was to identify how incorporating the DuPont STOP Behavior-Base Safety Training Program has improved organizational effectiveness within XYZ. To accomplish this goal, workplace analysis needed to be conducted on past safety audits within pre-processing, processing, and production areas in XYZ. Additionally, a survey was conducted. All the information collected from this review was discussed in Chapter II.

Conclusions

In reviewing the behavior-based safety program at XYZ along with employee surveys and workplace analysis of safety audits, it is easy to conclude that the program is very effective. The information below highlights the reduction in unsafe acts and conditions inside of company XYZ and shows how that has had a direct correlation with cost reduction from workers compensation:

- In Chapter II, we discussed the importance of Safety Cultures being employee driven. Looking at the results from Chapter II, nearly 80% of all employees who responded to the employee survey strongly agreed or agreed with all the questions asked.
- Another requirement discussed in Chapter II was behavior analysis, which can help understand unsafe behavior and its causes of it. XYZ regularly conducts safety audits monthly that allow management to target specific areas by using total observation. Therefore, the organization reduced its unsafe conditions/acts by 51.6% in 2020 and 44% in 2021.
- A thorough review of past workers' compensation claims illustrated that since the implantation of the DuPont STOP Data Pro application, the reduction of unsafe conditions/acts has directly related to a reduction in worker compensation payments.

In 2020, XYZ saw a $130,759.84 reduction in workers' compensation claim payments and a $127,925.62 reduction in 2021. These direct correlations reduced workplace hazards and produce lower worker compensation payments.

- Lastly, the final major requirement involved reviewing the dividend payments XYZ received based on their safety performance. In the year 2019, XYZ struggled with workplace hazards, which lead to high incident rates and work comp costs. As the safety program installed DuPont STOP Data Pro, each year XYZ has trended in the right direction. Based on the organization's safety performance, they received a dividend payment in 2020 of $20,085.28 and $70,175.56 respectively in 2021.

Recommendations

After reviewing the results of this study, the examiner/researcher suggests that XYZ install the following to improve its behavior-based safety program:

- improve/incorporate DuPont STOP training to all employees during new hire training
- provide reoccurring training every year to help employees keep the basic STOP fundamentals in their heads (i.e., Decide, STOP, Observe, Act, and Report)
- post workplace trend analysis in each department to show employees how their work areas are trending which will help improve working conditions if needed

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Appendix A

Consent Form

The attached survey has been created to gather information regarding XYZ Behavior-basedd Safety Training Program. No identifying information will be publicized during this study. Any information gathered during this study will be kept confidential by the Safety Manager of the facility.

Your participation in this study is entirely voluntary. You may choose not to participate without any adverse consequences to you. You have the right to stop the survey at any time. However, should you choose to participate and later wish to withdraw from the study, there is no way to identify your anonymous document after it has been turned in to the investigator. If you are participating in an anonymous survey, once you submit your response, the data cannot be linked to you and cannot be withdrawn.

Please complete and return all surveys to the Safety Managers mailbox by 5:00 PM –

Sunday, May 1.

Thank you!

Disclaimer

This study has been reviewed and approved by The University of Wisconsin-Stout's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have questions or concerns regarding this study, please contact the Investigator or Advisor. If you have any questions, concerns, or reports regarding your rights as a research subject, please contact the IRB Administrator – Elizabeth Buchanan at 715-232-2477 or by email at Buchanane@uwstout.edu

Address Information:

Office of Research and Sponsored Programs
101 Vocational Rehabilitation Bldg.
UW-Stout
Menomonie, WI 54751

Appendix B

Employee Questionnaire

Employee Survey Below: Please place a checkmark and rate yourself honestly based on what you feel given the statements below using the following scale.

Survey Questions	**5 Strongly Agree**	**4 Agree**	**3 No Opinion**	**2 Disagree**	**1 Strongly Disagree**
Does our DuPont STOP program effectively manage workplace hazards?					
Do you feel our STOP audits help prevent workplace injuries from occurring?					
Our main contributor to workplace incidents is complacency and employee morale.					
Our DuPont STOP program should be incorporated as part of new hire training?					
While working I am always thinking about our basic STOP principles.					