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## **Pedestrian Safety**

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Pedestrian Safety

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### **Abstract**

Every year the number of pedestrians involved in a car accident unfortunately increases. In Monterey County this seems to be especially true. According to the Office of Traffic Safety (OTS) in 2014, Monterey County ranked 17th out of 58 in the state of California for automobile crashes involving pedestrians and bicyclists. As a result, the Monterey County Health Department received a grant from the Office of Traffic Safety to address this problem. The team leading these efforts is the Injury Prevention Program from the Chronic Disease and Injury Prevention Unit. The capstone project consists of educational materials for elementary school children on pedestrian safety. Topics of this presentation include staying visible to traffic, safety equipment, staying alert for traffic as well as traffic rules and signals. Before COVID-19 impacted Monterey County and the schools, the original project consisted of assembly style presentations. However, due to school closures the delivery of this presentation was modified in order to comply with COVID-19 guidelines and to accommodate for the school's distance learning adaptation.

*Keywords: pedestrian safety, traffic, bicycle safety, helmets, bike*

### **Agency & Communities Served**

The Monterey County Health Department (MCHD) was established in 1850 and has been providing services to the community ever since. The mission of MCHD is, “ To excel at providing quality services for the benefit of all Monterey County residents while developing, maintaining, and enhancing the resources of the area” (MCHD, 2020). MCHD has a wide variety of departments and services. One of these departments is the Public Health Bureau, which is dedicated to “protecting and improving the health of people and their communities” (CDC Foundation, 2020). Under the Public Health Bureau a program dedicated to pedestrian and bicycle safety was established.

The team leading these efforts is the Injury Prevention Program from the Chronic Disease and Injury Prevention Unit. As previously mentioned, the current primary goal of this program is pedestrian and bicycle safety. This program works towards preventing pedestrian and bicycle injuries and deaths. The current population that is being served by this program are elementary school children. The age groups vary from second to fifth graders. Specific schools that are receiving services are in cities south of Monterey County, which is often referred as “South County.” The schools involved in this program are located in the City of Gonzales, Soledad, Greenfield, and King City.

The schools participating under this program received educational materials to distribute to parents and students covering pedestrian and bicycle safety. These educational materials included demonstration videos on properly crossing the street, proper bike helmet fitting, signals when riding a bicycle, how to be visible to traffic, along many other topics. The purpose of these

educational materials is to reduce the number of pedestrians and bicyclists killed or injured in South County, specifically in Soledad and Greenfield.

### **Problem Description**

The number of automobile accidents involving pedestrians and bicyclists is high in Monterey County. According to the Office of Traffic Safety (OTS) in 2014, Monterey County ranked 17th out of 58 in the state of California for automobile crashes involving pedestrians and bicyclists. This problem disproportionately affects the vulnerable populations of school-aged children and seniors. Over the years, cities like Greenfield in South Monterey County have ranked consistently high for these injuries and fatalities.

### **Contributing Factors**

A contributing factor for this issue is that many bicyclists under the age of 18 do not wear safety helmets (California Health Interview Survey (CHIS) 2003). Only 34% of teens ages 13-17 and 60% of children ages 0-12 always or usually wear bicycle helmets (CHIS, 2003). There may be many reasons why students do not wear bicycle helmets when riding which include poor fit, awkward appearance, and lack of knowledge of the legal requirement for youth to wear helmets when riding bicycles. Similarly, bicyclists may not be practicing safe behaviors on roads, such as riding against traffic and not stopping at stop lights and stop signs.

Another contributing factor is the lack of education from bikers, motorists, and pedestrians. In January 2020, the Monterey County Health Department conducted an observational survey for the Office of Traffic Safety on pedestrian and cyclist behaviors. This survey was done to have an insight of the level of knowledge the communities of Soledad and Greenfield have on pedestrian and bicycle safety. The result of these observations showed that

participants would often not walk in the designated crossing sections, they would be distracted by their electronic devices, and they would disregard traffic signals. The behaviors observed by bicyclists included riding their bike on the sidewalk and not on designated bike lanes, not making a stop at a four-way stop and lastly not wearing a helmet.

### **Consequences**

One consequence of these high numbers of automobile accidents involving pedestrians and bicyclists are injuries. According to an article named Pedestrian Injuries: Emergency Care Considerations stated that “Most injuries arising from these vehicle and ground impacts in adults are trauma to the head, legs and pelvis., tibial plateau fractures and ligamentous injuries of the knee, as well as traumatic brain injuries, are all common” (Chakravarthy, Lotfipour, Vaca, 2007) These injuries can hold short term and long term consequences. These consequences not only affect a person physically but can also impact their finances. For example, If a pedestrian is in a traffic accident involving a car and has serious injuries, these can result in hospitalization. Depending on the seriousness of the injuries and proper medical care cost can add a financial burden to the pedestrian.

Death is the ultimate consequence of these high numbers of automobile accidents involving pedestrians and bicyclists. According to the Office of Traffic Safety, Pedestrian fatalities increased 5.9 percent from 819 in 2015 to 867 in 2016 in California. In addition, bicycle fatalities increased 8.1 percent from 136 in 2015 and 147 in 2016. These increasing numbers of fatalities may indicate the need for pedestrian and bicycle safety, especially for the more vulnerable communities.

**Problem Model**

<b>Contributing Factors</b>	<b>Problem</b>	<b>Consequences</b>
Not wearing helmet	The number of automobile accidents involving pedestrians and bicyclists is high in Monterey County	Injuries
Lack of education		Death

**Capstone Project Description and Justification****Capstone Project and Project Purpose**

The capstone project consists of educational materials for elementary school children on pedestrian safety. Topics of this presentation include staying visible to traffic, safety equipment, staying alert for traffic as well as traffic rules and signals. Before COVID-19 impacted Monterey County and the schools, the original project consisted of assembly style presentations. However, due to school closures the delivery of this presentation was modified in order to comply with COVID-19 guidelines and to accommodate for the school's distance learning adaptation.

Due to the lack of education or services pertaining pedestrian and bicycle safety, the Monterey County Health Department created an educational video on pedestrian safety. This video explains safe pedestrian behaviors, tips, and pedestrian guidelines. In order to address the lack of using helmets, the health department has distributed helmets to the City of Greenfield and is in the process of organizing a distribution in the City of Soledad. In addition to the distribution of the helmets, the program is hosting proper helmet fittings during the helmet distribution while following social distancing guidelines and reminding participants to wear a mask.

**Project Justification**

According to the 2019 Grant Agreement between the Monterey County Health Department and the California Office of Traffic Safety, cities in Monterey County like Soledad and Greenfield would greatly benefit from educational opportunities about traffic safety. They make this suggestion due to the Office of Traffic Safety's 2016 rankings for automobile crashes involving pedestrians and bicyclists under the age of fifteen. According to those 2016 OTS Rankings, "Soledad ranked 7th worst of 94 similarly sized cities... Greenfield ranked 35th worst of 104 similarly sized cities. For bicyclist injuries and fatalities for children younger than age 15, Greenfield ranks 4th worst." These alarming numbers are what motivated the Health Department to apply for this OTS grant to bring pedestrian and bicycle safety education into the elementary schools.

**Project Implementation**

Plan's for project implementation were modified due to COVID-19. Originally, an assembly style presentation for elementary school children was created. This presentation addressed pedestrian safety vocabulary, traffic safety rules, traffic signals, and being visible to traffic. Unfortunately, the week expected for presentations to be implemented, the Shelter in Place Order was put in place by the county's Health Officer, Edward Moreno. This resulted in the closure of schools and non-essential business.

In order to adapt to the school closures and still deliver educational material, an educational video on pedestrian safety was created. This video has all the components that were planned for the assembly style presentations. In addition to that, it also demonstrates how to properly cross the street safely.

Furthermore, a YouTube channel for the Injury Prevention team was created. This allowed for the program to have a platform for their pedestrian safety video to be accessed by members of the community, specifically the population being served by this grant in Soledad and Greenfield. A survey testing the participant's knowledge on the educational video was created through Google Forms.

In addition, social media posts were created and posted on Facebook. These posts had to be sent to the Office of Traffic Safety Public Information Officer for approval. These posts were also shared with stakeholders in Soledad and Greenfield schools to have these materials shared with the target population. For more information on this project's implementation plan, please refer to the Scope of Work in Appendix A.

### **Assessment Plan**

As previously mentioned, a pedestrian safety survey was created through Google Forms. This survey is linked to the pedestrian safety YouTube video. This survey tests the knowledge of the participant by asking questions that correspond to specific material and topics covered in this video.

Unfortunately, the survey was not a success. Outreach efforts were made through the Monterey County Collaborates Facebook page as well as distributing the survey to stakeholders in Greenfield and Soledad. The video did obtain about fifty views but unfortunately participants did not complete the survey.

### **Expected Outcomes**

One expected outcome of this project is to increase the awareness and knowledge of pedestrian and bicycle safety for the residents of Monterey County by 5% after the program

implementation. This affects the number of crashes in which pedestrians and bicyclists are involved, especially those under the age of fifteen who have significantly higher percentages of accidents in Soledad and Greenfield.

This leads to another expected outcome of this program's education efforts. That is, to decrease the number of automobile crashes involving pedestrians and bicyclists under the age of fifteen in these cities. Lastly, the increase of the use of helmets is expected since helmet distributions will be taking place throughout the cities and schools being served under this OTS grant.

### **Project Results**

This project seemed to have promising results. Unfortunately due to COVID-19, modifications had to be made in order to meet the OTS grant that did not allow for the desired results. In addition to that, my internship shifted based on the needs of the agency. I was transferred from the Chronic Disease and Injury Prevention Unit to the Communicable Disease Prevention and Control one. Once COVID-19 impacted the community, I was recruited as a COVID-19 Contact Tracer.

Every educational material was completed and distributed to the population being served by the grant. Outreach efforts were made all over Monterey County. Unfortunately, there was not much interaction between the YouTube video and survey. One factor that could have affected this was the lack of access to electronic devices. With schools closing, the administration quickly had to switch and adapt to distance learning. Many students waited for a while to receive a laptop or tablet causing them to not have access to their needed files.

In addition, the lack of access to reliable internet was also a challenge that may have contributed to the results. Many students in Monterey County struggled to have access to reliable internet, even sparking a controversy when a picture of two students went viral after going to Taco Bell to connect to their wifi in order to complete their assignments. Without the internet there is no way to access the video created or the survey.

While the results were not the desired ones, my capstone project is 100% sustainable. The agency can demonstrate this video to the community until they desire not to. It also allows the agency to save time and money from having individuals present at each site and simply replace it with the video.

### **Conclusion & Recommendations**

While the original implementation plan was not successful, it is important to note that project modifications lead to a sustainable presentation on pedestrian safety. This presentation could be used if assembly style presentations are not an option for the agency if resources don't allow for a physical presentation. My recommendation for the agency is to make the presentation and survey a requirement in order for the students to receive credit. I believe this would help with outreach and collection of data in regards to pedestrian safety knowledge.

### **Personal Reflection**

My greatest success with my capstone was being able to actively participate in a grant. I had the opportunity to be included in the decision making of how to adapt and implement a project in a pandemic. The facts I found most interesting about the health, social or educational issues I addressed were the difference in transportation and access in Monterey County. From working in this project, I was also able to observe and help with planning and implementation in other cities such as Seaside. From my observations, South County is significantly at a disadvantage when it comes to pedestrian safety. South County lacks traffic signals, and the roads need improvement. Also, compared to the projects being implemented in Seaside, South County does not have the same resources or parent engagement to have a person responsible for Cross Guard duties. All this impacts and contributes to the safety of the community.

What I learned most from working on my capstone project was the ability to adapt. No one was prepared for COVID-19. Adapting and staying in constant contact with your team was the biggest lesson from my capstone project.

Besides the strategy I chose to address the causes of this problem, other strategies that could have been selected include live sessions with students educating them about pedestrian safety. If the education component is live, the participants have the opportunity to clarify any questions they may have.

The most important thing I learned from my internship was how to work independently. In an agency of that magnitude and programs, Managers can't dedicate their time entirely to one project. I was able to gain the experience of working independently with minimum supervision.

If I could start over at my internship, I would have asked for more support from my mentor and Supervisors. While it was great that I was able to reach the capacity of working independently, as an Intern I felt like I needed more guidance. This became especially important when I was without a mentor for three months. Unfortunately, I did receive the proper support from my Supervisor or Manager.

The most positive attributes of my mentor included her leadership abilities while still being compassionate. She is a great leader with a huge heart and her passion to serve is what inspired me to work with her. The most memorable event that was especially meaningful and gratifying was participating in the helmet distribution held in Greenfield and Soledad. Seeing the excitement of the children receive their helmets is unexplainable. I felt very grateful to be participating in that event.

The advice I would give to another student who might begin at my internship site in the fall is to do their research on the agency and program. Evaluate if you are comfortable with that setting and work pace. As mentioned before, this internship allowed me to work independently, for others this may not be what they want.

## References

California Health Interview Survey, C. C. (2003). UCLA Center for Health Policy Research.

Retrieved December 22, 2020, from

<https://healthpolicy.ucla.edu/chis/design/Pages/sample.aspx>

California, S. (n.d.). OTS Crash Rankings. Retrieved December 22, 2020, from

<https://www.ots.ca.gov/media-and-research/crash-rankings/>

Chakravarthy, B., Lotfipour, S., & Vaca, F. E. (2007). Pedestrian injuries: emergency care considerations. *The California journal of emergency medicine*, 8(1), 15–21.

Jessica, P., & Christabelle, O. Z. (2018). *Pedestrian and Bicycle Safety Program* (United States, Monterey County Health Department). Salinas, CA.

Mission, Values & Goals. (n.d.). Retrieved December 22, 2020, from

<https://www.co.monterey.ca.us/government/about/mission-values-goals>

Waddell, L., Strunz, E., Monroe, J., Buchdahl, H., & Croft, L. (n.d.). What is Public Health?

Retrieved December 22, 2020, from

<https://www.cdcfoundation.org/what-public-health>

### Appendix A

#### Scope of Work

Activities	Deliverables	Timeline/Deadlines	Supporting Staff
Pedestrian Safety Research	Research and begin creating a curriculum for presentations.	August 2019 to June 2020	Jessica Perez
Pedestrian Safety Video	Create a YouTube account for this video to be shared. Record, edit, and upload this video to be accessed to the population being served.	June 5, 2020	Jessica Perez
Pedestrian Safety Survey	Research questions pertaining to pedestrian safety and review video created to begin formatting questions.	June 10, 2020	Jessica Perez
Social Media Approval	Collaborate with OTS Public Information Officer to have social media content approved.	August 2019 to September 2020	OTS PIO and Jessica Perez
Social Media Outreach	Research information on pedestrian and bicycle safety. Gather research found and created social media posts and captions to be posted to Facebook.	October 2019 to September 2020	Jessica Perez and Guadalupe Covarrubias
Pedestrian Safety PowerPoint	Gather information found on these subjects and create a PowerPoint presentation.	February 10, 2020	Jessica Perez
Research Pedestrian and Bicycle Safety Information	Begin doing research on different agencies or programs that have implemented pedestrian and bicycle safety. Specifically look for curriculums	October 2019 to January 2020	Jessica Perez and Guadalupe Covarrubias

	developed for elementary school children.		
Helmet Distribution	Distribute helmets in Soledad and Greenfield for children.	September 2020	Janet Vaughn and Guadalupe Covarrubias
Helmet Fittings	Host helmet fittings in Soledad and Greenfield for children.	September 2020	Janet Vaughn and Guadalupe Covarrubias