

“Food Desert” American Samoa

Assessing food desert at school locations.

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July 2012

ACKNOWLEDGMENT

Sincere gratitude is hereby extended to the following that assisted and helped with this report:

Tapa'au Dr. Daniel Aga, ASCC-CNR Dean & Director

Aufa'i Ropeti Apulu Areta, ASCC-CNR Associate Director/Extension Coordinator

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Mary Scanlan, ASCC-CNR Research Assistant

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This work has been partially funded by Agricultural Development in the American Pacific project (ADAP)-NIFA Grant #2009-38826-19927. Financial support was also provided by a US Department of Agriculture Hatch grant, CRIS Accession No. 0212428, administered by the American Samoa Community College.



Executive Summary

American Samoa is an unincorporated US territory in the South Pacific. It consists of the Tutuila and the Manua islands. The population is estimated at 70,000. This is an island nation that is currently having an increasing problem with obesity. The US had done studies, research and implemented programs to help prevent the increasing rate of obesity. The data from studies in the US have shown one in five children suffer from child obesity. It was estimated in 2009 that 55.6% of American Samoan schoolchildren were either overweight or obese, which is more than half of the children population in the territory.

Obesity is one of the main concerns for medical professionals, community leaders, and parents in American Samoa. Research data have shown that obesity has led to many negative outcomes for children, especially in the future if there is no prevention as a child. The US first lady Michelle Obama “Let’s Move!” campaign focuses on preventing childhood obesity. Part of the campaign is taking on Food Desert, which is defined as an area with limited access to affordable and nutritious food.

This study is about the existence of Food Desert at school locations in American Samoa. The GIS system was used to map all the schools on island and the nearby stores. The Food Checklist was used to survey 23 stores near public schools on the island of Tutuila. All the stores picked were in proximity with public schools. The criteria for market inclusion was that the store was in a public schools’ proximity or public school zone, or was found along common walking routes to schools.

The results indicate that school locations in American Samoa are food deserts. Of the twenty-three markets that were assessed in this study, about 74% are visible from school grounds. About 57% did not stock any fruits or vegetables, of the 43% that stocked fruits and vegetables, only 20% scored 4 or above on quantity, quality, and variety. Baked and cooked foods are also sold in the store, and this would raise the important issue of food safety. 100% of the surveyed stores displayed ads in the front

entrance/exterior. The majority of the ads were chips, soda, and beer. Also 100% of the surveyed stores use the Purchasing Strategy.

The majority of the stores and wholesalers in American Samoa are swamped with processed foods. Since people of American Samoa depend on imports for 95% of their food, it is hard to make choices when there aren't many. These are the stores that are easily access by the students on their way to and from schools. Upon entering a store the first noticeable items are junk food like chips. These businesses are doing what's profitable for them. With price of oil increasing every year, so has the price of food. So businesses are very selective of selling perishable food because they want to make sure the foods are sold before they expired.

There's a great need to change or improve lifestyles in American Samoa so that the future generations would not have to experienced life of obesity and NCD's. Children need to learn and live a healthy lifestyle. Prevention should be the focus for the programs. This can be done through education, public awareness and family interventions.

Introduction

The purpose of this study is to assess if food desert exist at school locations in American Samoa. A food desert is an area that lacks nutritional food. Most of the schools on island are public institutions and the majority of the children attend these schools. Studies had been done and revealed the increasing number of overweight children in American Samoa. These children are more likely to become Obese and most likely to suffer from Non-communicable diseases in the future. A number of stores will be surveyed and observed to determine if food desert exist in the public school areas. When a food desert exists, it also means food insecurities in the area.

History

The Samoan archipelago was believed to be settled as early as 1000 B.C. Later on it was discovered by European explorers in the 18th century. The Wars and rivalries for colonization in the Pacific Ocean led to the 1899 treaty in which Germany and the US divided the Samoan islands. The Germans claimed the western side of the islands and became known as Western Samoa, and the US formally occupied the eastern part of the Samoan islands and called it American Samoa.

American Samoa is currently an unincorporated territory of the United States. It is located in the South Pacific Ocean, southeast of the Independent State of Samoa, formerly known as Western Samoa.

American Samoa is consisted of Tutuila, Manu'a Islands and Rose Atoll. Tutuila is the largest and the most populous island in the territory. American Samoa is about half way between Hawaii and New Zealand.¹ The total territory land area is 76.1 square miles (197.1 km²); slightly more than Washington,

¹ <https://www.cia.gov/library/publications/the-world-factbook/geos/aq.html>

D.C., and it is the southernmost territory of the United States.² By 2009, American Samoa's population reached 70,000.³

Challenges

Food Security in American Samoa

The World Food Summit of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”. Food Insecurity is when there is limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable way.⁴ Commonly, the concept of food security is defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences. In many countries, health problems related to dietary excess are an ever increasing threat.

Poverty is the main cause of food insecurity and hunger. Child food insecurity and hunger are extremely harmful during the first three years of life.⁵ During 2010, over 17 million households in the United States struggled to put enough food on the table. For many of these children, a school meal is the only nutritious source of food they can count on.⁶ If a child learns to eat healthy at an early age it can lead to prevention of obesity and NCD's in the future.

In American Samoa, a good number of the population relies on federal food assistance programs. This includes the SNAP, WIC, and School Lunch Program. All these programs are based on the USDA

² ibid

³ DOC 2009 Statistical Yearbook

⁴ Cook, J. & Jeng, K. “Child Food Insecurity: The economic impact on our nations”

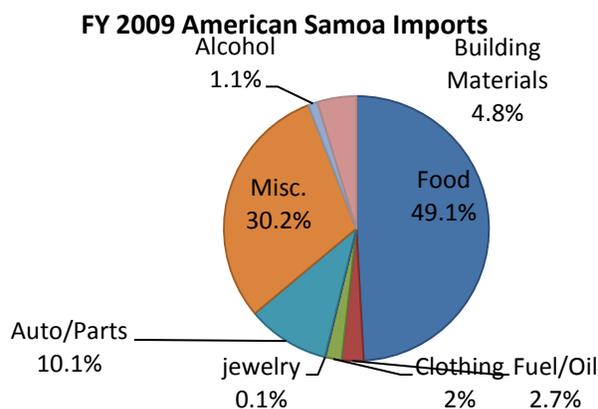
⁵ Cook & Jeng. Child food insecurity

⁶ Memo Code: SP 10-2012

nutritional guidelines, and most of these programs are for children. In the year 2000, 62 percent of individuals or 50% of families from American Samoa were below the national poverty level.⁷

American Samoa’s food system relies on shipping services. About 95% of the food supplies are exported from the US and other nations, and this makes American Samoa very vulnerable. If for some reason a disaster strikes and shipment of foods are delayed, American Samoa population would only have enough food on island to last two to three weeks⁸. To increase food security in American Samoa, there’s a great need to increase local grown food and types of food that can be locally processed. In addition, accessing the knowledge of growing, cooking and preservation supports community resilience not only in terms of local food supply, but in nutritional health and self-sufficiency.⁹

In addition, the Samoans has become increasingly reliant on imported staples such as rice and flour, and is vulnerable to global price increases as a result. The Samoan people used to eat local food and cook food in traditional style, but more people had become westernized. More people had relied on imported food and it has also caused deterioration in their diets. As a result, the Samoans rates of obesity and Non-communicable diseases are amongst the highest in the world.¹⁰



⁷ ASDOC.Statistical Yearbook 2009

⁸ Areta, A., (2009), ASCC/CNR Conference to focus on food security in American Samoa. Samoa News.

⁹ www.islandstrust.bc.ca

¹⁰ Secretariat of the Pacific Community (2008). Food Crisis an Opportunity for the Pacific. Samoa News

Non-Communicable Diseases/Obesity

A non-communicable disease is a term used to refer to diseases that are not contagious. A type of disease that is not transmissible from the infected host to another.¹¹ The term is used to differentiate these diseases from other diseases that may be transmitted to other hosts. Non-communicable diseases (NCDs) are the leading causes of death globally, killing more people each year than all other causes combined.¹² Despite their rapid growth and inequitable distribution, much of the human and social impact caused each year by NCD-related deaths could be averted through well-understood, cost-effective and feasible interventions. Of the 57 million deaths that occurred globally in 2008, 36 million were due to NCDs. The NCD's are mainly cardiovascular diseases, cancers, diabetes and chronic lung diseases.¹³ About one fourth of global NCD-related deaths take place before the age of 60. NCDs are caused by four behavioral risk factors: tobacco use, unhealthy diet, insufficient physical activity and the harmful use of alcohol.

According to findings from the American Samoa 2004 Non-Communicable Disease STEPS report, about three-fourths of the population-based study sample of adults aged 25-64 were obese.¹⁴ Not only are obesity rates high among adults in American Samoa, schoolchildren are also found to have a high obesity and overweight prevalence. A study by the Obesity Study Committee in 2009 estimated that 55.6% of American Samoan schoolchildren were either overweight or obese.¹⁵

Early detection and timely treatment approach is effective to improve health care and reduce the impact of NCDs. Many NCD-related health-care interventions are cost effective, especially compared to costly procedures that may be necessary when detection and treatment are late and the patient reaches advanced stages of the disease. Health systems need to be further strengthened to deliver an effective,

¹¹ http://www.biology-online.org/dictionary/Non-communicable_disease

¹² www.who.int/nmh/publications/ncd_report_full_en.pdf

¹³ www.who.int/nmh/publications/ncd_report_full_en.pdf

¹⁴ Richards, K. (2011)

¹⁵ Richards, K. (2011)

realistic and affordable package of interventions and services for people with NCDs. Many research studies state causes, prevention and treatment of NCDs over the past three decades. One of the issues in these studies is obesity.

“Over nutrition is more readily seen in developed countries or territories like American Samoa. Progressively more people are developing sedentary lifestyles and eating more than their daily energy requirement.”¹⁶ There are trends like an increase in the serving sizes of foods consumed, which contributes to the obesity problem. For example, “super-sized meals are now promoted as the norm. The amount of food advertising, particularly junk food advertising, has dramatically increased and consequently a significant impact on the amounts and types of foods that people eat.”¹⁷

Obesity is linked to non-nutritious foods, and it's a drain not only on the body but on the health care industry, employers and the government. The estimated cost to the U.S. health care system due to obesity and obesity-related problems is \$100 billion a year. Diet-related health problems are disproportionately higher in food deserts than in regions served by mainstream grocers. “You are what you eat”. The poor quality foods are linked chronic illnesses, cancer, cardiovascular disease, diabetes, hypertension and even premature death. When nutritious foods aren't available, it's hard to eat healthily.

American Samoa is challenged by limited access to healthy food. It has been established that all the villages of American Samoa have access to food, but questions is whether these stores are offering any or enough nutritious food for the people. The local communities are aware of statistics that reflect the growing prevalence of obesity, diabetes, cancer, cardiovascular disease and hypertension. As rates of these and other chronic health problems continue to be a problem, a study was carried out to explore the consequences of food deserts. Studies in the US revealed residents of food desert experience higher

¹⁶ http://www.oup.com.au/__data/assets/pdf_file/0004/189535/Whole_Food_2_Chapter_4.pdf

¹⁷ http://www.oup.com.au/__data/assets/pdf_file/0004/189535/Whole_Food_2_Chapter_4.pdf

rates of certain diet-related health conditions. Findings in the US also revealed both the challenges and opportunities involved in providing equal access to healthy food to affected neighborhoods. Studies are being done to inspire new understanding of “food desert” and the significance to community health issue

Awareness

A website from the US Department of Agriculture (USDA) called Food Desert Locator shows that 10% of the country is now a “food desert”. It suggests images of endless fast-food restaurants and convenience stores serving fatty, sugary junk food to overweight customers. The USDA links food deserts to a growing weight problem of childhood obesity in America, which tripled since 1980 and the annual cost of treating obesity increased to nearly \$150 billion.¹⁸

As part of Lets Move!, the campaign to end childhood obesity, First Lady Michelle Obama is taking on food deserts. Accordingly, Michelle Obama announced a \$400m Healthy Food Financing Initiative in 2011 with the aim of eliminating food deserts nationwide by 2017¹⁹. These are nutritional wastelands that exist across America in both urban and rural communities where parents and children simply do not have access to a supermarket.²⁰ Some 23.5 million Americans, including 6.5 million children, currently live in food deserts. Michelle Obama defines “food deserts” as places where fresh produce and affordable, healthy choices are nonexistent to battle the child obesity epidemic in the U.S. The First lady refers to food desert as an area where healthy foods are tough to come by and often too expensive for residents. The fight against food deserts is one of the priorities in her Let's Move campaign, which was launched 2011 to try to bring down the staggering rate of childhood obesity, which affects one in five children in the United States.

¹⁸ USDA “Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and their consequences.

¹⁹ *ibid*

²⁰ <http://in.news.yahoo.com/michelle-obama-attacks-food-deserts-combat-child-obesity-083750236.html?vm=r>

In America, the definition of a food desert is any census area where at least 20% of inhabitants are below the poverty line and 33% live more than a mile from a supermarket.²¹ Food Deserts are large geographic areas with no mainstream grocery stores. Often, Food Deserts have ready access to fringe food which is food high in salt, fat, and sugar. Food deserts often go hand in hand with food insecurity. Food insecurity means people aren't sure where their food will come from. In addition, they have little-to-no access to nutritious food and are likely to have unbalanced diets and skip meals.

In many food deserts communities, stores actually have access to food. It's just that the Stores includes a selection of unhealthy processed foods, known as fringe foods, from fast-food restaurants, small corner convenience stores and liquor stores. Many fringe locations also offer “quick meals” that are highly convenient but cannot support a healthy diet on a regular basis. The majority of the stores around American Samoa are not so convenient if you want to buy fruits or vegetables.

There's has been only one study on the issue of “food desert” in American Samoa. It was prepared by East Tennessee State Doctoral Students Kasie Richards and Emma Apatu in 2011. It was called “Healthy Food Assessment for American Samoa Youth”. A healthy food assessment was conducted to understand school aged children's access to healthy foods in and around school to develop strategies to promote healthier eating habits. The study concluded that students had unhealthy diets because they ate a lot of junk foods like sodas, candies, and chips.²²

According to studies, nearly 1 in 3 children are at risk for preventable diseases like diabetes and heart disease due to overweight and obesity²³. Based on the high percentage of children and adults with Obesity, different programs and awareness have been developed to prevent obesity. If left unaddressed, the current generation of children may well have a shorter lifespan than their parents.²⁴ For instance,

²¹ ibid

²² Richards & Apatu (2011)

²³ Memo Code: SP 10-2012

²⁴ ibid

National School Lunch Program (NLSP) developed policies to assist Local Education Agency (LEA) to develop healthy meals for the children. In early 2012 the “final rule” for the school meals was issued. It was a major change for the school lunch menus in 15 years.

A “competitive food” is defined as any food item that is sold in competition to the reimbursable school meal. A “food of minimal nutritional value” is a food that state agencies and school food authorities should prohibit the sale of in food service areas during meal periods. The term “food service area” is anywhere school meals are served or consumed, including classrooms and multipurpose rooms that double as cafeterias during meal periods. “Foods of minimal nutritional value” listed in the regulation includes soda water, water ices, chewing gum, and certain candies.²⁵ All of these items are popular stocks in all the stores in American Samoa, especially if located near schools.

Method

Food Checklist Methods

There are a total of 40 stores near all schools on the island of Tutuila. The Food Checklist was used to survey 23 or 57% of stores located near public schools on the island of Tutuila. About 26% of these stores were located near high schools and 74% near elementary schools. 40% of public schools are located on the west side of the island and about 60% on the eastern side. 48% of the stores surveyed were located on the west side of the island, and 52% on the east side. All the stores surveyed were in proximity with public schools. The criteria for market inclusion was that the store was in a public schools’ proximity or public school zone, or was found along common walking routes to schools. The stores were examined for their visibility from the schools. The Advertisements on the exterior of the stores were recorded. Products for sale upon entering the stores at eye level were identified, and eye level was made relative to the age of the school children (i.e. lower eye level for stores located near

²⁵ Memo Code: SP 09-2011

elementary schools). Products were then identified at both above and below eye level of the shelves examined. Also identified were any products found at the check-out counter to determine any potential point of sale influences. Identify products found at the check-out counter (to determine point-of-sale influences). Prominent advertisements inside of the store were also located and recorded. These observations were recorded. It was determined whether or not the markets assessed sold fruits and vegetables. If they did, the variety, quality, and quantity of fruits and vegetables were rated using a 5 point Likert scale of 1 equals poor to 5 equals excellent.

Store Name	Village		School	Size		
				S	M	L
unknown	Seetaga	West	Alataua	X		
unknown	Sogi-Leone	West	Midkiff		X	
Jerry	Vailoa	West	Midkiff		X	
Ao's	Vailoa	West	Leone HS	X		
unknown	Vailoa	West	Leone HS	X		
unknown	Pavaiai	West	Pavaiai Elem.	X		
Leta's	Pavaiai	West	Pavaiai Elem.	X		
S&H	Aoloau	West	Siliaga		X	
unknown	Aoloau	West	Siliaga	X		
unknown	Iiili	West	Lupelele		X	
Aveina	Nuuuli	West	Manulele			X
Gold Conda	Fagaaalu	East	Matafao		X	
Chinese-Samoan	Utulei	East	Samoana HS	X		
Young Mart	Utulei	East	Samoana HS		X	
unknown	Utulei	East	Samoana HS	X		
unknown	Pago Pago	East	Coleman	X		
TM	Pago Pago	East	Coleman		X	
LIN	Pago Pago	East	Coleman		X	
Skyview	Aua	East	Aua Elem.			X
Rainmaker	Aua	East	Aua Elem.		X	
Logo Mai	Alofau	East	Alofau	X		
unknown	Fagaitua	East	Fagaitua HS		X	
unknown	Tula	East	Matatula		X	

Store Entrance View – Store Across from Elementary School.



High-School Eye-level

Elementary school Eye-level

The store sizes were divided into three types: small, medium, and large.

Small stores refer to stores that access through a window. Sometime there's an entrance but the amount of stocks are limited or small. Most of these types of stores do not sell any fruits or vegetables.

These types of stores are called "bush stores". They usually sell products that are popular to their everyday customers. In a school location, it's usually what kids love.

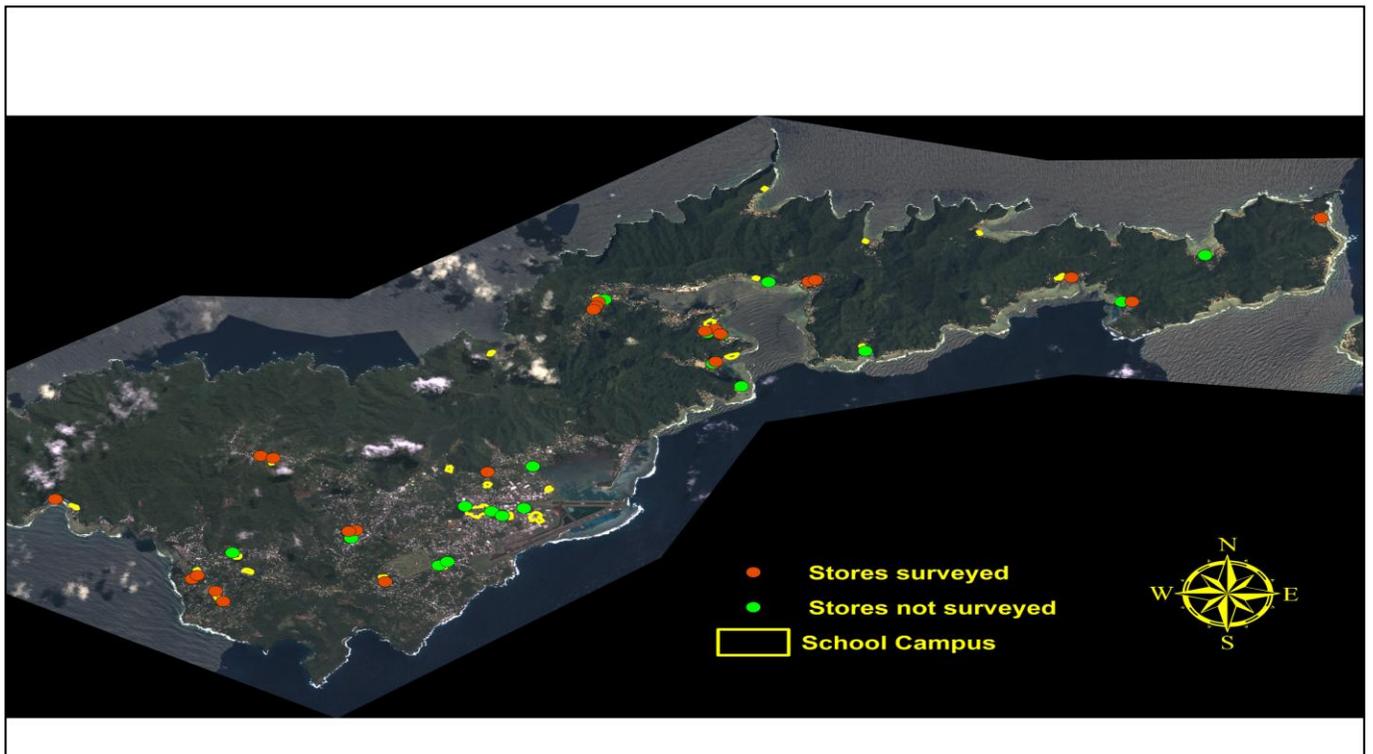


Small size store located across from Pavaiai elementary school during lunchtime.

Medium Size refers to stores similar to convenience or corner store sizes. Most of the stores around the island are considered medium size. Most likely they sell fruits or vegetables, but score low on the likert scale for quantity, quality, and variety. Like small stores they have advertisements of junk foods in the front or entrance.

Large Size refers to a good size grocery store, but not a supermarket size. It usually provides customers with most of the needed items. There are only a few of these types of stores on island.

The GIS system was used to map the stores around the schools and record data. This is a system that can identify different attributes of the survey. The assessments were also recorded in an excel spreadsheet. The map shows the locations all the schools, private and public. All the stores near schools were also mapped, but only stores near public schools were surveyed (the red dots).



Results/Findings

Healthy Food Environmental Assessment Results

Question A: Of the twenty-three markets that were assessed in this study, about 74% are visible from school grounds. 26 % were not visible from the school campuses but were close enough for students to walk and purchase items. About 43% were in the small size category, 48% in the medium size category, and only 9% in the large size category.

Question B: About 57% did not stock any fruits or vegetables. Of the 43% that stocked fruits and vegetables, only 20% scored 4 or above on quantity, quality, and variety. Overall, only 9% of all the stores surveyed stock fruits and vegetables with good quantity, quality, and variety.

Question C & D: 100% of the stores surveyed sold chips, cookies, and soda at children's eye level. Items would be stocked from top to bottom of the stand, so it would be eye-level for every age or height. Depending on the height of the child, but all the items except for candy were reachable by the children. 100% of the stores stocked their candies at the purchasing counter. Even though it was not eye-level with young children but it was located at an area that all children can easily see it. 100% of the stores sell cooked and baked goods, but the issue is food safety. These food items are displayed on the counter or shelf openly. All the stores stock sodas, juices and water in the display cooler, and all are reachable.

Question E: 100% of the surveyed stores displayed ads in the front entrance/exterior. The majority of the ads were chips, soda, and beer. None of the Stores displayed any ads on fruit or vegetables.



Question F: 100% of the surveyed stores use the Purchasing Strategy. Next to the cashier are stocks of candies and gums. Baked and cooked foods are also found on the counter, and this would raise the issue of food safety. No drinks are available at the front door because it needs to be in the cooler, which are usually located at the side or the back of the store. 100% of the stores stocked the chips and cookies in the front section of the store, a position where it can easily be found by buyers.



Purchasing Strategy: Store, across from Lupelele elementary, counter packed with sweets like candy and gum.

Conclusion

Overall, the results from the survey indicate that school locations in American Samoa are food desert. All of the stores are swamped with unhealthy or processed foods. These are the stores that are easily access by the students on their way to and from schools. Upon entering a store the first noticeable items are junk food like chips. When exiting the store, the cashier counter is packed with candies and gums.

The exterior of the store buildings are decorated with ads of chips, soda, beer, and cigarettes. Only 9% of stores scored 4 or above on the Likert scale in quality, quantity, and variety of fruits and vegetables.

Many factors are associated with the increasing number of obesity in American Samoa. Food Desert is just one of those factors. Since the people of American Samoa depend on imports for 95% of their food, it is hard to make choices when there aren't many. Based on the USDA definition of a "food desert", about 90% of American Samoa is most likely considered food deserts.

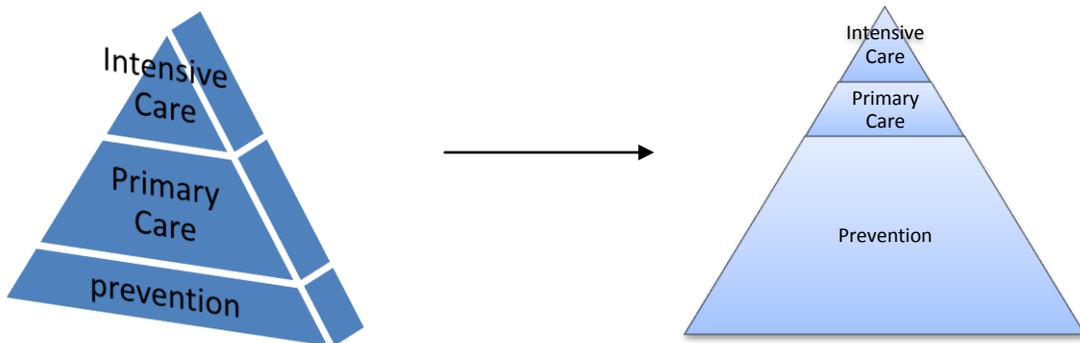
Food Desert exists at school location and probably the whole island. There's only one Supermarket on island that has all the fresh food products like fruits, meat, and milk that are usually found in US Supermarkets. The business sector has a goal of making profits and with price of oil increasing every year, so has the prices of food. Businesses are very selective of selling perishable food (fruits and vegetables) because they want to make sure the foods are sold before they expired. It is why canned and frozen foods are very popular in local stores and diets.

There's a great need to change or improve lifestyles in American Samoa so that the future generations would not have to experienced life of obesity and NCD's. A recent study reported that 60% of deaths in American Samoa were NCD Related deaths.²⁶ Children need to learn and live a healthy lifestyle. In any Samoan occasion, it is very important to have enough food for everybody. "Ta'u valea pe a le lava mea'ai." This Samoan phrase means that it's embarrassing not to have enough food for a special event or occasion. Maybe "We are what we eat" phrase realistically defines what is happening in American Samoa.

Recommendations:

- Create policies to minimize access to unhealthy food on school campuses.
- Improve access to healthy food.
- Well-developed programs to educate the educators and the students in Nutrition using locally grown food.

Goal:



²⁶ Department of Health-Emergency Preparedness Division. *Samoa News*, July 25, 2012.

Healthy Food Assessment Environmental Checklist

Store Name _____ **Location** _____

Store # _____ **Observer** _____

Size Small Medium Large

A) Can you see the school from the store/market? Yes No

B) Does the store sell fruits and vegetables? Yes No

<i>Quantity</i>	None	1	2	3	4	5 (many)
<i>Variety</i>	None	1	2	3	4	5 or more types
<i>Quality</i>	(Poor)	1	2	3	4	5 (Excellent)

C) What foods and drinks are at eye level for children?

candy chips soda juice water cookies milk

others: _____

D) What items are above eye level?

candy chips soda juice water cookies milk

others: _____

E) What type of food/drink advertisements and displays are in the store?

Posters	Flyers	Point of purchase display	Eye-catching display	None
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others: _____

F) Food/Drink Available at the counter/by the front door?

candy chips soda juice water cookies milk

others: _____

G) Other Observations:

Name	Village	School	Size			School Sight		Fruits/ Vegetables		Eye-Level		Ads/Display s		Unhealthy Exit/Entrance	
			S	M	L	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
unknown	Seetaga	Alataua	X			X		X			X		X		X
unknown	Sogi-Leone	Midkiff		X		X		X			X		X		X
Jerry	Vailoa	Midkiff		X			X		X		X		X		X
Ao's	Vailoa	Leone HS	X				X	X			X		X		X
unknown	Vailoa	Leone HS	X				X	X			X		X		X
unknown	Pavaiai	Pavaiai Elem.	X				X	X			X		X		X
Leta's	Pavaiai	Pavaiai Elem.	X				X	X			X		X		X
S&H	Aoloau	Siliaga		X		X		X			X		X		X
unknown	Aoloau	Siliaga	X				X	X			X		X		X
unknown	Iliili	Lupelele		X			X		X		X		X		X
Aveina	Nuuuli	Manulele			X	X		X			X		X		X
Gold Conda	Fagaaalu	Matafao		X			X		X		X		X		X
Chinese-Samoan	Utulei	Samoana HS	X				X	X			X		X		X
Young Mart	Utulei	Samoana HS		X			X		X		X		X		X
unknown	Utulei	Samoana HS	X				X	X			X		X		X
unknown	Pago Pago	Coleman	X				X	X			X		X		X
TM	Pago Pago	Coleman		X		X			X		X		X		X
LIN	Pago Pago	Coleman		X		X			X		X		X		X
Skyview	Aua	Aua Elem.			X		X		X		X		X		X
Rainmaker	Aua	Aua Elem.		X			X		X		X		X		X
Logo Mai	Alofau	Alofau	X				X	X			X		X		X
unknown	Fagaitua	Fagaitua HS		X			X		X		X		X		X
unknown	Tula	Matatula		X			X		X		X		X		X
Total			10	11	2	6	17	13	10	0	23	0	23	0	23
%			43%	48%	9%	26%	74%	57%	43%		100%		100%		100%

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