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## Capstone Assignment: Topic Outline

American Military University

SPHE490

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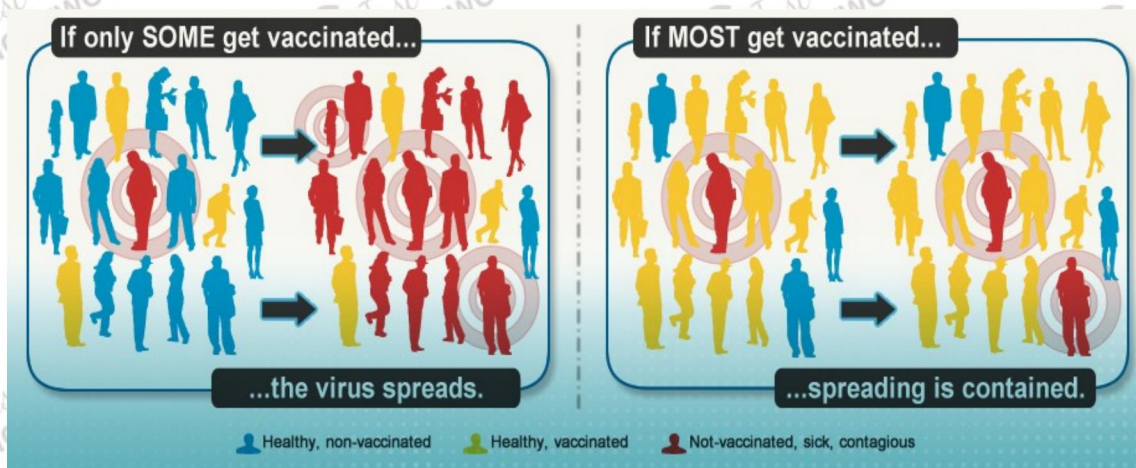
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## Introduction

Hello, I am Pierce Gillis, and I am obtaining my Bachelor of Science in Sports and Health Sciences. The concentration is Fitness and Wellness Professional Studies, and I have been assigned the task by local community members to instate Healthy People 2020 health objectives for Immunization & Infectious Diseases, Tobacco usage, Heart Disease and the prevention of the spread of Sexually Transmitted Diseases. The community has asked that I focus on these four specific areas as it has become a prevalent problem that in one way or the other affects most of the members of this community. Immunization & Infectious Diseases has become a major health risk recently, as more and more people are being misled or are simply uninformed as to what the benefits of immunization have against the spread of infectious diseases. My goal here is to educate the community to dispel the stigma against immunizations. Tobacco usage continues to make a massive negative impact on community health. No matter how much we have learned about tobacco usage, it is still impacting the community in a major way leading to a death toll racked up in the millions. The goal of documenting tobacco use is to prevent the usage of tobacco through education of the risks of smokeless tobacco, smoking tobacco, and even secondhand smoke. Heart disease is one of the leading causes of death in the U.S. and with the rise of obesity, it seems that education and a plan of attack are necessary to bring this silent killer to an end. The goal here is to inform the public about healthy diet and exercise to significantly reduce the impact that Heart Disease has on the community. Sexually transmitted diseases, or known by others as Sexually Transmitted Infections, is an issue that not only plagues the young community but, potentially impacts any and every person that is sexually active. With countless different diseases or infections being passed through unprotected sexual contact, there is a need for prophylactics and regular testing to quell the rise of disease. The goal is to educate the community on the need for contraceptives as well as safe alternatives to sexual intercourse if



they are unprepared. I have established a reasonable budget that will show the Department of Social Services that with an aggressive education plan, these four objectives can be easily obtained and will show a drastic decline within the community.



## Immunizations and Infectious Diseases

Immunization is essential to prevent the spread of infectious diseases. The advent increases in life expectancy in the 20<sup>th</sup> and 21<sup>st</sup> centuries, as result of child survival is primarily associated with reductions in mortality from infectious diseases. This success is credited to immunizations. According to WHO, immunization is a proven tool for eliminating life-threatening infectious diseases and is estimated to avert two to three million deaths annually (WHO, n.d). Immunizations are cost-effective health investments that do not require major lifestyle changes, targeting specific groups and with well-defined strategies can reach people in remote areas. The goal for Healthy People 2020 for immunization and infectious diseases involves increasing immunization rates and reducing preventable infectious diseases (ODPHP, 2019). The goal is rooted in evidence-based clinical and community activities. The initiative also plans to enact other defenses such as proper use of vaccines, use of antibiotics, screenings and testing guidelines, and scientific improvements in the diagnosis of infectious diseases.



### Why are Immunization and Infectious Diseases Important?

People around the world are continuously affected by vaccine-preventable diseases.

Hepatitis and influenza are the leading infectious diseases causing deaths in the United States.

Few measures in public health can measure up to the impact of vaccines. Immunization not only provides individual protection but also secures a community from the spread of infectious

diseases. In a highly susceptible population where a transmitting case is present, there is higher chances of the transmitting case to initiate a chain of person-to-person transmission. In

retrospect, a highly immune population may come into contact with a transmitting case. The

result of this interaction can break the chain of transmission and achieve indirect protection of the remaining susceptible cohorts as they remain unexposed.

Whereas vaccination use is highly recommended, some populations do not use certain vaccines citing health side effects, religious, and communal beliefs. A CDC report on 159 measles cases reported between January and April 2015, revealed 68 US residents with measles did not receive vaccinations, from the cases, 43 percent cited religious and philosophical objections (Orenstein & Ahmed, 2017). Other surveys also showcased an increase in parental vaccine refusal with credible reason (Orenstein & Ahmed, 2017). In light of this discourse, it is important that people realize vaccinations are essential but not mandatory for people with designated reasons. The reason why this information is important is because vaccines administered to people they are recommended to are not useful and would be better used for the right people who may need them.

### Resurgence of Vaccine Preventable Diseases

The recent anti-vaccination movement, has influenced a resurgence of vaccine-preventable diseases. Infectious diseases such as smallpox which were thought to have been

eradicated in certain areas are resurfacing. In the US, vaccine-preventable diseases (VPDs) such as measles and pertussis are becoming more common (Porteous et al., 2016). The factors that give rise to this disturbing trend include the antivaccination movement, waning efficacy of vaccines, mutation and pathogen adaptations, and traveling of individuals to and from the areas where the diseases are endemic (Porteous et al., 2016). Looking at the factors influencing the resurgence of VPDs is essential in determining how to deal with the situation. Vaccine compliance and completion is one of the primary factors associated with VPDs resurgence. The Society of Pediatric Nurses is reviewing its position statement on vaccinations. According to the CDC vaccine compliance in children in the U.S is 90 percent for infants between 19 to 35 months (Hill et al., 2017).

Infectious disease resurgence biggest impact is felt in regions with poor economic stability. Such is the case in Venezuela where long term shortages of medicines and medical supplies used to treat infectious diseases have caused a resurgence and spread of VPDs. In Venezuela, the interruption of the epidemiological surveillance systems, weakening of immunization programs and an unprecedented exodus of health care professionals set the stage for the resurgence of vector-borne and other VPDs (Paniz-Mondolfi et al., 2019). The World Health Organization and Pan American Health Organization (PAHO) have recognized the recent return of measles and other VPDs in Venezuela, which pose a significant threat of outbreaks beyond the borders (Paniz-Mondolfi et al., 2019). The mass exodus of people from Venezuela to Colombia and Ecuador also possess the challenge of VPDs resurgence as susceptible people carry the diseases with them.

Venezuela is one case of a community where the resurgence of VPDs was experienced even after the diseases had been eliminated. Measles was interrupted in February of 2007 after

mass vaccinations. In 2017, the disease resurfaced, particularly in the vulnerable indigenous populations (Paniz-Mondolfi et al., 2019). The disease has since then subsequently reached the neighboring countries. As of October 2013, Venezuela was reportedly the major contributor to measles reported deaths in the Americas (Paniz-Mondolfi et al., 2019). A similar case was experienced with diphtheria where the disease had not been reported in Venezuela for 24 years before 2016. Since then, a total of 2170 cases have been reported in the country (Paniz-Mondolfi et al., 2019). Low vaccination coverage rates in Venezuela are documented as the causal factor. Venezuela's devastating healthcare system also increases chances for polio resurgence. The case of Venezuela is an example of what can happen when vaccination exercises plummet below the minimum recommended levels. The weakening of surveillance programs, migrations, political, economic, and food crisis without planned solutions set the stage for the resurgence of VPDs.

### The Aftermath of Infectious Diseases due to lack of Vaccinations

Failure to vaccinate for typically encountered diseases has detrimental effects on the well-being of the community. Certain carriers in the community may expose others to potential infectious disease. The rise of non-medical exemptions to vaccines also increases the rates of VPDs. With the advent increase in migrations and travel, failure to vaccinate against previously encountered illnesses introduces the diseases to new populations. Such is the case for three Amish children in Missouri, the USA who were diagnosed with *Haemophilus influenzae* type b infection (Myers et al., 2017). One patient had traveled to Indiana and Wisconsin to visit their family before the infection developed. The Amish community generally desist from vaccinating their children, and the incident raised the possibility for contact with carriers among the unvaccinated Amish children. Whereas there was no known contact between the patients, the local health departments launched a vaccination campaign to identify the obstacles to vaccine



utilization in under-vaccinated communities to improve community education and prevent infection (Myers et al., 2017).

### Healthy People 2020 Objectives on Immunizations and Infectious Diseases

The healthy people 2020 initiative documents the global progress of immunization and infectious diseases. The first objective involves reducing and maintaining the elimination of cases of vaccine-preventable diseases (WHO, 2019). To achieve this, cases of vaccine-preventable congenital rubella syndrome (CRS) have to be contained in children under one year. Cases of serotype b cases of *Haemophilus influenzae* (Hib) have to be contained in children under five years (ODPHP, 2019). Reduction of new hepatitis B cases in people aged between two to 18 years is paramount. Reduction of measles and mumps in the US acquired cases, pertussis among children below one year, and adolescents between 11 to 18 years. Maintaining the elimination of acute paralytic poliomyelitis and rubella in the US acquired cases. Reduction of early-onset group B streptococcal disease and meningococcal disease as well as cases of chickenpox among people aged below 17 years. The Other objectives for the initiative include maintaining vaccination coverage for children in kindergarten, maintaining vaccination levels for universal vaccines in young children, increasing routine vaccinations for adolescents, and also increasing the percentage of people vaccinated for seasoned influenza (ODPHP, 2019). The Healthy People 2020 goal for flu vaccination for high-risk individuals 18 to 64 years of age is 90 percent, but in California 2015 to 2016, the immunization rate was only 42.4 percent (Equills et al., 2018). The rate of immunization in California only falls below the federal Healthy People 2020 objectives.

### Dispelling the Stigma against Immunization of Infectious Diseases

Multiple studies document concerning patterns about the decline in confidence in vaccines. This is primarily so because of the anti-vaccine movement, which doubts the

effectiveness and safety of immunizations. Whereas vaccination rates in the US remain high, surveys show vaccine refusal in many communities. The stigma against vaccinations is usually unfounded in rumors and propaganda spread by people with different beliefs. The World Health Organization documents the misconceptions about immunizations as; the infectious diseases had begun to disappear before the introduction of vaccines as a result of better hygiene and sanitation (WHO, n.d). A second misconception is that the majority of people who get sick were vaccinated. Some vaccines are associated with adverse events and death than others (WHO, n.d). Parents should, therefore, desist from vaccinating their children from such immunizations. Vaccines have harmful side effects, including illnesses and death. Vaccine-preventable diseases have been eliminated in some areas; therefore, the people there do not need immunization. Giving children multiple vaccinations for different diseases increases the risk of harmful side effects and can overload the immune system. Knowledge of these misconceptions is necessary to identify possible solutions.

Dispelling the stigma of vaccinations for infectious diseases involves actionable steps such as corroborating parents' fears and offering information about vaccines and the science behind them as well as offering recommendations all in the context of empathy and established relationship (Smith, 2017). Intervention measures for scientists can be moved from papers targeting healthcare professionals to working with parents and groups with vaccination hesitancy (Smith, 2017). With the resurgence of VPDs and increased mass migrations, it is crucial that state authorities and healthcare organization revise healthcare policies regarding immunizations in a way that can reduce the stigma against vaccinations with the intent of saving lives.

## Tobacco

Some of the key facts about tobacco documented by WHO are that it kills up to half of its users (WHO, 2019). The drug kills more than eight million people in a year, seven million deaths resulting from direct tobacco use, and 1.2 million deaths of non-smokers resulting from second-hand smoke. Approximately 80 percent of the 1.1 billion smokers of tobacco come from low to middle-income countries (WHO, 2019). Second-hand smoke from tobacco is the smoke that fills restaurants or other social gatherings when tobacco is burnt. The Healthy People 2020 initiative has the goal of reducing illness, disabilities, and death related to tobacco usage and second-hand smoke exposure (ODCHP, 2019). Tobacco use is the biggest preventable cause of mortality in the US. The Healthy People 2020 framework plans to reduce the tobacco use epidemic by increasing tobacco prices, enacting smoke-free policies, expanding cessation treatments in clinics, and implementing comprehensive anti-tobacco media campaigns.

### Risks of Second-hand Smoke from Tobacco

According to WHO, second-hand smoke from tobacco causes cardiovascular and respiratory diseases. There are more than 4000 chemicals in tobacco smoke, 250 of which are harmful and over 50 known to cause cancer (WHO, 2019). Tobacco smoke is also associated with coronary heart disease and lung cancer in adults. According to the Healthy People 2020 initiative, the types of cancer associated with prolonged tobacco use include oropharynx, larynx, esophagus, trachea, bronchus, and lung cancers (ODCHP, 2019). Other lung diseases include emphysema, bronchitis, chronic airway obstruction, and pneumonia. Among infants, the smoke causes risks of sudden infant death syndrome. It can also lead to more severe asthma attacks, respiratory infections in children. Second-hand smoke causes prenatal complications among pregnant women and can also result in low birth weight. Other reproductive issues include ectopic pregnancy, premature birth, stillbirths, erectile dysfunction, and reduced fertility in



women. Other risks of prolonged tobacco use include type 2 diabetes, muscular degeneration, rheumatoid arthritis, cataracts, and blindness. The smoke released from tobacco smoke in public places is breathed by almost half the number of children in that setting — about 65,000 child mortality results from second-hand smoke (WHO, 2019).

Passive smokers of tobacco often ignore the implications the smoke has on their health. All types of smokers have ten times more risk of acquiring lung cancer. They also are twice more likely at risk of developing myocardial infarction, as well as six times more at risk of chronic obstructive pulmonary disease (Naeem, 2015). Second-hand smoke is still as dangerous as whereas diluted still contains carbon monoxide, nitrosamines, and ammonia. Second-hand smokers still have a 20-30 percent risk of developing lung cancer. Children are particularly more at risk as their bodies are still growing and oxidative stress from tobacco smoke can impede their growth. Naeem (2015) documents that second-hand smoke causes 34,000 premature deaths from cardiovascular diseases in non-smokers. Non-smokers exposed to second-hand smoke increase the risks of developing heart diseases or stroke by 20-30 percent. About 8000 second-hand smokers die from strokes in a year (Naeem, 2015). Second-hand smokes have similarly devastating effects on normal heart functioning and also damages and harden blood vessels.

### Impacts of Tobacco Smoking on Health

Cigarette smoking poses a significant challenge to public health due to two major factors; the prevalence of tobacco smoking is high, and the smoking of tobacco results in serious health problems. The association between tobacco smoking and the health effects of smoking is dose-dependent. According to the Department of Health and Human Services, tobacco cigarette smoke contains more than 7000 chemicals and inhaling the smoke exposes anyone to the toxins (Bonnie, 2015). The long-term health effects for tobacco smokers include cancer, heart diseases,

and chronic obstructive pulmonary disease (Bonnie, 2015). Immediate effects of smoking tobacco include increased oxidative stress, depletion of bioavailable antioxidant micronutrients, impaired immune system, throat cavity inflammation, altered lipid profiles, and poor overall health status.

The physiological markers of diminished health include increased oxidative stress. The radicals and oxidants in tobacco smoke induce oxidative stress in the body, which leads to oxidative injury to proteins, lipids, and DNA. Oxidative stress also diminishes the body's defenses against oxidative stresses as antioxidant micronutrients are depleted in circulation. The inflammation of the thoracic cavity and lungs is hypothesized to play a role in the pathogenesis of other chronic diseases. Tobacco also greatly impacts the innate and adaptive immunity of the body.

### Impacts of Smokeless Tobacco

The campaign to substitute tobacco smoking with smokeless tobacco (SLT) for harm reduction in smokers is still open for debate in the tobacco control community. Smokeless tobacco contains nicotine, which is an addictive substance and which has been discovered to cause oral and pancreatic cancers for prolonged users. Some concerns are stating SLT has reduced impacts in a bid to deter smokers may result in people population harms for people quitting smoking completely, or encouraging other people to use both SLTs and smoking or introduce new users to SLTs when they perceive it as safer. The forms of smokeless tobacco include loosely packaged tobacco leaves or leaves compressed into a brick and called a plug or braids of leaves called twist. This is put in the mouth, and the saliva that builds up is swallowed or spat out. Other forms of SLTs include snuff a finely cut or ground tobacco that is either sniffed or attached to the gums. Snus is sold in teabag-like pouches and is popular in Sweden.

All these products have the health risks of addiction, cancer, mouth lesions, dental disease, and cardiovascular diseases.

According to the CDC, the health effects of smokeless tobacco include nicotine addiction, cancers of the mouth, gut, and pancreas (CDC, 2018). It also causes diseases of the mouth, can cause nicotine poisoning in children, can increase chances for early deliveries and stillbirths during pregnancy and may increase risks of death from heart disease and stroke. SLT products contain harmful cancer-causing chemicals. The most harmful are nitrosamines formed during the curing, fermenting, and aging of tobacco. There are radioactive elements found in SLTs such as polonium-210 found in tobacco fertilizer.

### Healthy People 2020 Objectives for Tobacco Use

The objectives for the initiative regarding tobacco use include reducing tobacco use in adults. This involves the reduction of cigarettes smoking, use of smokeless tobacco products, and reduction of the use of cigars, cigarillos, and filtered cigars. The same objective applies to adolescents but is more focused on reducing tobacco use in the past month. A third objective includes reducing the initiation of tobacco use in children, adolescents, and youth. The initiative is focused on increasing smoking cessation attempts by adult smokers and increasing smoking cessation success. The proposed health system changes include increased tobacco screening in healthcare systems, increasing tobacco cessation therapy, and counseling. The social and environmental changes proposed include reducing the proportion of nonsmokers exposed to second-hand smoke and establishing laws that prohibit tobacco smoking in public places and workplaces.



### Interventions for Tobacco Use

Tobacco use continues to be a leading cause of preventable death. In the US, more than 15 percent of the population uses tobacco products control efforts through surveillance and addressing disparities in tobacco use prevalence are need to realize the Healthy People 2020 object of reducing the smoking rate to 12% (Robertson et al., 2017). One comprehensive intervention involves increasing surveillance to communities where tobacco use is prevalent and using the data to inform culturally-tailored tobacco policies and programs to reduce tobacco use in the population. Modern epidemiology may be limited in terms of its applicability to marginalized communities. For this reason, a combination of quantitative and community-based participatory research (CPBR) is proposed to expand the scope and reach of tobacco use and factors in cross-sector collaborations and multi-level actions.

The HP2020 initiative provides evidence-based recommendations to reduce tobacco use, such as changing the tobacco packaging design for reducing tobacco use (ODCHP, 2019). The US Preventive Services Task Force identifies primary care interventions for tobacco use in children and adolescents. The initiative proposes pharmacotherapy interventions for tobacco smoking cessation in adults and pregnant women. Other behavioral interventions include telephone services, use of self-help materials, and use of professional advice that help people with coping skills (ODPHP, 2019). Varenicline is a non-nicotine prescription medication that is used in substitute of tobacco as it mimics how nicotine functions in the body. Addicts can be guided on the appropriate nicotine replacement products and medications. They can also be referred to as a support group.

## Heart Disease

Data from the WHO suggests that cardiovascular diseases (CVDs) are the leading cause of death globally (WHO, 2017). Anyone, including children at risk of heart disease; some people are even born with heart diseases and conditions. In 2016 only, an estimated 19.9 million people died from CVDs, which accounted for about 31 percent of all global deaths (WHO, 2017). Data from the CDC also showcases more than 600,000 deaths from heart diseases in the US. One in every four deaths in the US is a result of CVDs (CDC, 2017). Coronary heart disease is a common type of heart disease and kills over 370,000 people annually. Heart diseases may involve the valves and arteries of the heart and other blood vessels.

The American Heart Association works with the CDC to document up to date statistics of heart disease and stroke and presents the data in a statistical update. The update is used by the public, policymakers, media, clinicians, and other healthcare professionals in seeking further information about the conditions. Population-level health promotion strategies are needed to shift the majority of the public towards better cardiovascular health. The prevalence of cardiovascular health is higher in children and young adults than middle-aged and older adults in the US. Approximately 50 percent of US children between 12 to 19 years have ideal cardiovascular health with a lower prevalence of 47 percent observed in girls (Mozaffarian et al., 2015). In adults, the ideal levels of cardiovascular health behaviors vary from a 0.5 percent metric to 78 percent of the smoking metric.

### Types of Cardiovascular Diseases

- Coronary artery disease caused by blockage of the heart arteries.
- Angina a type of chest pain caused by reduced blood flow to the heart

- Arteriosclerosis caused by thickening or hardening of the walls of the arteries typically common in old age.
- Congenital heart disease a problem with heart functioning that may be present from birth.
- Heart failure is characterized by abnormal heart functioning.
- Arrhythmia which involves an irregular heartbeat or rhythm.
- Rheumatic heart disease a complication of rheumatic fever that damages the heart valves.

### Risk Factors

- The common phenomena surrounding heart diseases include the build-up of a substance called plaque in arteries as a result of high blood cholesterol. This action narrows the blood vessels reducing blood flow to the heart.
- Heart diseases are comorbid with other diseases such as chronic obstructive pulmonary disorder (COPD), diabetes, and obesity.
- Diabetes causes damage to the arteries increasing the risk for hypertension
- Lifestyle choices such as smoking, alcoholism, unhealthy diet, and lack of exercise.
- Lack of sufficient sleep.
- Radiation therapy.
- Stress
- Viruses and infections.

### Signs and Symptoms of Heart Diseases

- Early warning signs of heart diseases include chest pain and discomfort, upper body pain, including discomfort in the arms, back, neck, and jaw, shortness of breath, nausea, and lightheadedness.



- The symptoms can vary depending on the type of heart disease. The symptoms of impending heart attack or other CVD include chest pains that do not subside for a few minutes, palpitations and a faster heartbeat, weakness and dizziness, and cold sweats (Nordquist, 2018).

### Obesity and Heart Diseases

Both obesity and cardiovascular diseases have become a menace in the US. Recent studies suggest that one in three Americans is Obese. Obesity is linked to several factors that increase a person's risk for CVDs. The adverse effect of obesity on the body includes extortion of hyperdynamic circulation and heart failure. There are three major four significant ways in which obesity contributes to heart diseases. High blood lipids, triglycerides, and cholesterol levels can cause blockage and constrictions of the blood vessels leading to heart failure. Obesity lowers high-density lipoproteins (HDL) cholesterol, which is essential for removing bad cholesterol. Obese people have a high body to mass (BMI) index, which is associated with an increased risk of developing heart failure. It causes hypertension as obese individuals require more blood supply and oxygen and nutrients supply to their bodies. Heart attacks in obese people are commonly a result of high blood pressure. Obese and overweight people often have an enlarged left ventricle increasing the risk for heart failure. Obese people also have a high chance of developing diabetes. The American Heart Association asserts that 68 percent of people aged over 65 years with diabetes have CVDs (AHS, 2015).

### Prevention and Treatment

Prevention of heart diseases includes lifestyle adaptations such as exercising and weight control, quitting smoking, and making dietary changes. It is advisable to engage in physical exercise for about 30 minutes on most days of the week. Physical activity aids in weight control

and reduces the chances of developing other conditions that put a strain on the heart. Maintaining a healthy diet prevents heart conditions such as atherosclerosis and hypertension. Diet rich in fruits is good for the heart, whereas food rich in saturated fats is detrimental to the cardiovascular system. Treatment includes the use of medications to reduce blood cholesterol, open-heart surgery such as coronary artery bypass grafting (CABG), cardiac rehabilitation, which includes exercise and counseling. Treatment of CVDs relieves symptoms, reduces worsening of the condition, and prevents further complications.

### Physical Activity in Preventing Heart Failure

Evidence-based studies and practice show that physical activity decreases disease progression. Physical activity and exercising increase the cardiorespiratory fitness and reduces the sedentary time associated with progression of heart diseases. Four to five weekly sessions of exercise reduce heart failure incidences and are necessary to mitigate associated age reductions in ventricular compliance and cardiac mass (Nayor & Vasan, 2016). Regular exercising also burns the blood cholesterol and fat that can lead to blockage of blood vessels. Given heart failure results from the body's inability to meet the cardiac output, exercising serves to promote and maintain the cardiac output necessary for people with risk of heart failure. Whereas cardiovascular diseases are associated with old age, it can be deduced that introducing exercising in aged people can aid in averting the risk factors for development and progression of cardiovascular diseases. The cardiac remodeling in athletes where the heart adapts to the increased cardiac output can also be used for individuals with heart problems to remodel the heart to function as it should. Various studies suggest that higher levels of physical activity increase the left ventricle mass, internal left ventricular dimensions, and reduces vascular stiffness (Nayor & Vasan, 2016).

### Dietary Guidelines for Reducing Risks of Heart Diseases

How much people eat is as important as what they eat. Overeating can lead to the addition of body calories. Observational studies assert that fruit and vegetable consumption have a protective effect against CVDs. However, fruits and vegetables should be taken as part of a balanced diet. Fruits and vegetables have a bioactive nutrient effect dependent on antioxidant, anti-inflammatory, and electrolyte property. They also have a functional property that is low glycemic load and energy density (Allisa & Ferns, 2017). Fruits and vegetables to choose include fresh or frozen vegetables, low sodium canned vegetables, and fresh or canned fruit. The fruits and vegetables to limit are coconut, vegetables with creamy sauce, fried or breaded vegetables, and canned fruit in heavy syrup. Whole grain should be chosen over refined products.

Unsaturated fats found in olive oil, vegetable and nut oils, nuts and seeds, and avocados are advised over saturated fat found in butter, gravy, cream sauce, hydrogenated margarine, and cocoa butter found in chocolate.

### Healthy People 2020 Objectives on Heart Diseases

The goal of HP2020 for cardiovascular diseases is to improve cardiovascular health and quality of life (ODPHP, 2019). This is possible through the prevention of risk factors, early detection, and treatment for heart diseases. Heart disease is identified as the leading cause of death in the US and stroke the fifth. Heart disease and stroke collectively are the most widespread and costly health problems plaguing the US. The HP2020 objectives include the developmental increase of cardiovascular health in the US population, reduction of coronary heart disease and stroke deaths, and increasing the proportion of adults having their blood pressure measured. The initiative hopes to reduce the number of people with hypertension in the population. Reduction of the proportion of people with high blood cholesterol and increasing the proportion of people with LDL cholesterol to recommended levels is also planned. The initiative



hopes to increase awareness of people aged 20 years or older on the symptoms of heart diseases and how to respond to a heart attack. A major objective for the initiative involves reducing hospitalization of older adults with heart failure as the principal diagnosis (ODPHP, 2019).

Evidence-based information and recommendations include screening cardiovascular disease risks with electrocardiography. Risk assessment should be done with nontraditional risk factors.

## Sexually Transmitted Diseases

Sexually transmitted infections (STIs) is an issue of global concern and affects sexually active young people. The WHO documents that more than one million STIs are acquired every day in the world. In every year, there are an estimated 357 million infections, with one in four STIs being chlamydia, syphilis, gonorrhea, and trichomoniasis (WHO, 2019). The WHO also documents more than 500 million people estimated to have herpes simplex virus (HSV). More than 290 million women have human papillomavirus (HPV) disease (WHO, 2019). A majority of STIs exhibit no symptoms, and only mild symptoms may be recognized. Diseases such as gonorrhea have high drug resistance, thus poses a significant threat to the impact of STIs. STIs can have detrimental effects on the reproductive system with consequences beyond the immediate impact of the infection. In 2016, 988,000 pregnant women were infected with syphilis resulting in more than 200,000 stillbirths and death of newborns (WHO, 2019). The HP2020 initiative documents more than 35 infectious diseases are transmitted through sexual activity.

### Understanding STIs

There are biological, social, economic, and behavioral factors associated with the spread of STIs. The biological factors include the asymptomatic nature of STIs that allows spreading since people who have them do not perceive that they need medical care. Gender disparities in STI infections cause more complications in women than in men. Complications include pelvic

inflammatory disease, infertility, and ectopic pregnancy. Age disparities influence spread as people between 15 to 24 account for half of new STIs. The social, economic, and behavioral factors include racial and ethnic disparities where STIs are prevalent among African Americans, Hispanics, and American Indians than in whites. According to Buzi (2018), young males are more at risk of negative sexual health outcome than females. They are more likely to engage in risky sexual behavior as a result of early initiation into sex and engaging in sex with more than one partner. Buzi also asserts that men who have sex with men (MSM) are more disproportionate to be affected by HIV. Poverty and marginalization limit access to care and health-seeking behaviors. In such populations, access to healthcare for early detection, treatment, and behavior change is limited. Substance abuse is closely associated with STIs. Sexual secrecy where people find it difficult to discuss intimate aspects of life contribute to the spread of STIs. A literature review of 15 studies by Samkale-Zeeb et al. (2011) reveals that there are low levels of awareness about STIs except for HIV/AIDS among adolescents. Knowledge of condom use does not translate to behavior change, and the school setting plays an important role in fostering adolescents' sex education and STD prevention.

### Diagnosis of STIs

There are accurate diagnostic tests for STIs in developed and high-income countries. Diagnostic tests are useful specifically for asymptomatic infections. For low-income countries, diagnostic testing may not be available or may be expensive. This makes people shy away from taking the tests. The inexpensive, rapid tests available in most parts of the world are tests for syphilis and HIV. A single testing cartridge can be used to conduct a rapid dual HIV/syphilis test. Screening can be done for people under 25 years who are sexually active, pregnant women, and people with new partners to identify the presence of STIs. Laboratory tests of urine or fluids

such as saliva samples can be used to diagnose the type of infection. For the common STIs, a physical examination or pelvic exam can provide the diagnosis of an STI.

### Treatment of STIs

The majority of STIs are caused by bacteria and parasites. They can, therefore, be treated using antibiotics. Antibiotics can be taken orally or through injections. Treatments may also be typical to a type of STI. Antibiotics are used with the common bacterial STIs chlamydia, gonorrhea, and syphilis. However, surveillance programs reveal the Antimicrobial Resistance (AMR) for gonorrhea and other STIs (WHO, 2019). This calls for prevention and prompt treatment. Herpes and HIV are treated using antiretrovirals that modulate the course of the disease. The treatments are meant to reduce the symptoms and progression of the infections as well as reducing the risks of the infections being passed on to other people. In low and middle-income countries, there is a reliance on the identification of consistent, recognizable symptoms before effecting treatment without the necessity of laboratory tests. Whereas syndromic management is simple, inexpensive, and assures same day treatment, it may result in overtreatment, or missed treatment as the majority of STIs are asymptomatic.

### Prevention of STIs

Adopting safer choices such as reducing the number of partners, using contraception's like condoms, and maintaining monogamy are the sure ways of preventing STDs. Safer choices have a greater impact involving intercourse frequency with condom use. Safer choices regarding condom use reduce seven of 13 psychosocial variables related to STDs (Coyle et al., 2016). Hepatitis B and HPV can be prevented using safe and highly effective vaccines. Biomedical interventions include male circumcision, which reduces the risk of HIV and other STI infection in men by 60 percent and the use of tenofovir gel, a vaginal microbicide that has shown some



effectiveness against HSV-2. In many countries, STI services are provided separately from the primary health care. This makes it difficult for affected persons to know where to get help. In many healthcare settings, there is a lack of trained personnel and laboratory facilities in STI intervention; thus, the lack of adequate supplies of appropriate medicines increases the risk of spread. The World Health Organization's response to this includes working with countries to scale up screening services, STI case management and counseling, and administration of vaccines for hepatitis B and HPV. Increasing prophylactic treatment for early detected STIs is paramount. WHO works with health organizations around the world to enhance STI prevention by integrating STI services in existing healthcare facilities, promoting sexual health through community awareness, and monitoring the response to antimicrobial resistance (WHO, 2017).

The HP2020 initiative accounts for emerging trends in STDs to enhance prevention. The initiative documents that each state should address the system-level barriers and factor in the treatment of partners of people with STIs. Enhanced data collection on demographic and behavioral variables is necessary to understand the epidemiology of STDs. Innovative communication strategies are necessary to address disparities, vaccine administration, and perceptions of sexual health and STI prevention. Prevention efforts should be coordinated with a healthcare delivery system to incorporate new information into the health reform legislation. The HP2020 evidence-based recommendations for the prevention of STIs include screening among pregnant women for syphilis, screening adolescents and adults for genital herpes, and school-based interventions for preventing HIV, STIs, and early pregnancy in adolescents (ODPHP, 2019).

Risk reduction strategies include creating awareness of the necessity and importance of contraceptives use. Promotion of safer sex practices includes a focus on condom use as a means

of risk reduction. However, this strategy is not full proof as condoms provide limited protection against the skin to skin to the sore transmission of STIs such as HPV, syphilis, and HSV.

Condoms are also associated with mechanical failures in young people. Other prevention strategies include partner reduction, mass advertising media campaigns emphasizing behavior change, educational strategies for risk avoidance (Genius & Genius, 2005). Commercial sex workers may play a significant role in the spread or reduction of STDs. A study by Haque et al. (2016) documents the knowledge and awareness on the prevention of STDs among commercial sex workers. The respondents of the study had some knowledge about STD transmission through a sexual activity using razors, and even shaking hands. The results assert that the only sure way to contain the spread of STDs is through monogamy. Prevention is only possible through an understanding of sexually active people on how the diseases are spread. Risks are dramatically reduced through the use of condoms.

### Healthy People 2020 Objectives on Sexually Transmitted Diseases

The initiative plans to reduce the proportion of adolescents and young adults aged 24 years and under with chlamydia infections. The initiative plans to increase the proportion of sexually active females aged 24 years and under enrolled in medical plans and to provide screening for chlamydia and other STIs. The initiative plans to increase the proportion of sexually active females aged 24 years and under enrolled in health insurance plans such that they can receive regular screening. It plans to reduce gonorrhea, congenital syphilis, reducing sustained domestic transmission of primary and secondary syphilis, and reducing the proportion of females with HPV infection.

## Conclusion

The Department of Social Services can infer from these findings on the appropriate steps to take to effect the changes needed to meet the Healthy People 2020 initiative. An aggressive education plan is needed to deter young people from falling into the trap of the four discussed global problems. Immunizations affect all people and more so young children; thus, measures should be put in place to prevent a resurgence of VPDs. Tobacco use, which causes preventable death, can be alleviated through better educational strategies and adoption of best practices. Cardiovascular diseases are identified as being caused by many lifestyle choices. The goal of reducing their impact involves adopting better lifestyle choices and educating people on the risk factors. Sexually transmitted infections are a matter of global concern primarily because of the increased sexual activity in young people. Sufficient knowledge of the risk factors and prevention is needed to prevent further spreading. The HP2020 includes goals and objectives for improving the overall health of Americans. Great strides have been made in the past to increase life expectancy and reduce the leading causes of death. Part of the HP2020 initiative is to observe the trends in the health of Americans and identifying the most probable ways of improving quality of life. Increasing public awareness is the first step towards achieving the goal of healthy people.



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