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Public Health Interventions in Cystic Fibrosis

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Abstract

The United States invests billions of dollars dedicated to funding research projects throughout the country. For instance, President Obama's fiscal budget for the National Institute of Health was 31.3 billion dollars. In efforts to conduct groundbreaking research; however, the budget was decreased due to sequestration from Congress. Consequently, the National Institute of Health has lost over 1.7 billion in funding for FY 2014, this loss will affect over 700 research grants overall due to sequestration (www.nih.gov, 2014, para.4). However, the National Institute for Health invigorates the U.S to stay number one among developed world healthcare providers, it also has advanced medical and scientific technology, by creating sound treatments and preventative measures for those with cystic fibrosis and other chronic diseases that plague U.S citizens alike. Unfortunately, budget cut to the NIH will affect clinical trials, competitive research grants and will poorly impact research prevention overall in the Country. Therefore, budget cuts and cystic genetic mutations affect our government, public facilities and private institutions overall. By, crippling their ability to conduct viable research cystic research will plummet without funding (www.cff.org, 2013). Without, concise clinical research trials the NIH and private researchers who receive grants to study cystic fibrosis will not be able to conduct research trials which help to enroll participants that could offer solutions to unraveling the genetic valley of gene mutations associated with cystic fibrosis. Cystic fibrosis has affected both public health in the United States and global communities, governing bodies research capabilities, and interventional policy creation over the past twenty years.

Introduction

First, cystic fibrosis impacts public health in the U.S. through biological, genetic and molecular factors that are both positive and negative. Regretfully, some aspects of cystic fibrosis are negative upon those suffering from the disease and the governing bodies in which are needed in funding programs and health systems that are essential in treating the disease. Biomedical research has advanced in studying the specific gene mutations that occur in cystic fibrosis while genetic epidemiology has allowed for longer life spans in those with the CFTR gene mutation. People with cystic fibrosis are living to 37.5 years of age and experienced improved public health care impacts as opposed to their global partners in developing worlds (www.cdc.org.gov, 2012). However, this positive growth in treating and care has only grown due to the implementation of sound clinical research and higher education in America [1-8]. Public health measures throughout the country seek to prevent disease states as opposed to responding to disease states as older models of treating diseases after the initial diagnosis has changed. Cystic fibrosis has impacted public health by: identifying those with disease states early on, elongating life in CF patients, and medical practices/providers are seeking to identify those with disease. However, the necessary medical treatments like: antiviral, antibiotics, life support and gene therapies can be costly among all judicial branches in effort to decode the onslaught of mutations that can occur in the CFTR gene [7].

Secondly, some ways governmental contribution roles are implicated is in research prevention of cystic fibrosis has impacted experienced mortality rates associated with the disease state. As stated earlier, those with cystic fibrosis are experiencing much longer lives as opposed to twenty years ago. Governmental research via clinical trials are vital to preventing the spread of cystic fibrosis in newborns that remain undiagnosed without the proper testing for CF and sound institutional procedures. For example, most states within the U.S. require infant testing for cystic fibrosis at delivery times or before three months of age. Fortunately, these early testing requirements have been instrumental in diagnosing and ensuring timely treatment for infants with CF. These timely clinical tests have been an essential part of cystic fibrosis sufferers experiencing better quality of life. With the CFTR mutation amino acids are stagnant and allow for increased mucus production in the CF gene mutation faltering potassium and sodium levels in patients. This has an extreme effect on private intuitions and governments alike. There are not many species which experience this gene mutation except in the human genome. So, identifying people with the mutation is essential in treating the disease and increasing awareness

on testing capabilities among those of European heritage. The U.S. funnels billions of dollars into research annually by supporting the National Institute of Health's budget. Ensuring access to healthcare, quality care, adequate hospitals, clinics and preserving federal support to HIH is essential to positive influences from governing systems (www.nih.gov., 2012).

Methods Used to Diagnose Cystic Fibrosis in Infants

a. Cf testing

b. Infant test

c. Sweat test

However, one can become an advocate and delve into governmental cystic fibrosis processes by: volunteering, meeting with congressional representatives and strengthening the Food and Drug Administration's overall. These all can help in the methods utilized in public health prevention initiatives when attempting to fund research associate with cystic fibrosis. The U.S and its European partners have taken on the fight against cystic fibrosis in measures to prevent the disease from occurring more frequently through timely testing.

Thirdly, biological, genetic, molecular indicators that impact public health practices are experienced by millions in the U.S. Biological indicators of public health impacts both patients and governments negatively overall. Therefore, without the proper research to identify mutative genes from all disease states. These spectral norms wouldn't exist and public health would be greatly deterred among all stakeholders in the U.S. Other biological indicators can be from environmental and molecular variance in the world in which we live and the internal processes from all human, plant and animals. Also, public health impacts are greatly dependent upon the educational, planning, implemented, and evaluation of molecular factors associated with quality care among citizens. Fortunately, new discoveries in large animal studies like pigs are showing great resemblance to CFTR gene mutative phenotypes in animals (Fisher, 2011). Which would greatly improve the understanding of the gene mutation in the human specifies. Although, in earlier studies there were no comparative mutations in small animals like mouse, and ferrets to suggest somatic nuclear cell transference of a CFTR gene type (Warwick, 1963).

Last, but not least, there are several types of public health intervention strategies available to those with cystic fibrosis. From sweat testing early on it a concise indicator for infants with the disease. Even if infants are diagnosed at five to six months early intervention is key in improving life spans among cystic fibrosis patients. This has helped medical providers and parents identify children inflicted with the disease early on. This has led to increasing the lifespan of those with the CFTR gene mutation. Also, other interventions include educating the public on cystic fibrosis symptoms, while stressing the importance of intervention early on. For example, in the U.S. every state tests for the CFTR gene after delivery. There are global initiatives to support research on cystic fibrosis like the United Kingdom's Cystic Trust Research Strategy which increases awareness and raises millions of dollars to support key biomedical, pharmaceutical research.

Conclusion

In conclusion, cystic fibrosis has affected both public health in the United States and global communities, governing bodies research capabilities, and interventional policy creation over the past twenty years. Fortunately, it has inspired great clinical trials and pharmacokinetic practices that continue to p [positively influence the lives of thousands suffering from the disease process. Governing bodies will continually fight against the disease which continually evades the phenotypes of thousands of Eastern Europeans among all populations around the globe. Governmental roles in the CFTR gene mutation are to seek research methods to decrease the prevalence of the disease state. By, family planning, genetic testing, gene sequencing and educating the public are all essential in government processes to fight the F508 gene mutation (Table 1).

Table 1: Methods in Public Health to Prevent or Treat Cystic Fibrosis (www.cff.org, 2014).

Molecular	Genetic	Biological
Preventive methods can be produced by chromosomal mapping/walking to alter CFTR mutation	Gene therapy has become leading public health intervention over the years	Biological preventions come from mucus thinning agents inhaled like: Sodium Chloride 2%, Pulmozyme
Over the past decade Nano size ribosomes can be induced to promote full CFTR synthesis in phenotypes	Kalydeco prescriptions are available; however, very costly to patient and facility	Improved filtration systems promote clean air, thereby making passive respirations easier. Digestive medications to decrease viscosity of gastro intestinal tract

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