

Proffering a Sustainable Preventive Health Approach through Population Health Initiatives (PHIs)

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Abstract

Myriads of issues and challenges surrounds the health of individuals and populations all around the world. From rural-urban health disparities to the gross health inequities among populations, and the failure of individuals to taking responsibilities for their own health and well-being. The badly overwhelmed individual-centric healthcare delivery systems found all over the world today is a testament to the fact that as healthcare practitioners, experts, policy makers and governments, we all need a paradigm shift in our traditional approaches to healthcare delivery system. We now have to look at the health of individuals from population perspectives. We now have to manage our health systems from the primary and preventive vantage points through Population Health Initiatives (PHIs). The health outcomes of entire populations and their distributions coupled with the factors influencing the health of populations needs now become our primary focus and point of interest. Varied elements and factors define the health and well-being of populations, and it is the interest of PHIs to influencing and moderating these varied elements towards attaining positive health outcomes for populations and in effects, for the individuals.

Keywords: Population Health, Population Health Initiatives, Health Outcomes, Health Inequities, Self-health Management, Preventive Health.

Introduction

The one most vital element to human well-being and happiness remains a good health. Because not only do the healthy individual or population live longer, they also contribute meaningfully to the economic development and outputs of the society (WHO, 2020). The World Health Organization (WHO) has rightly defined health as “*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*” (WHO, 2002). Thus, the well-being of humans is not determined by the physical and mental state only, but more importantly, by the social constructs which defines the entire life journey of the individual. These social constructs or determinants contributes to the major elements that stands as barriers to health equities in the world today. The bizarre disparities seen in the health of populations all around the world today is a stark testament to the fact that the individual-centric approach of traditional medicine may no longer be viable (Zangerle, et al; 2016). While it is empirically impossible for us not to attend to the

health of the individual, the realities of this time and age now calls for a more holistic approach to healthcare management. There is an urgent need now for the health of the individual, communities, and societies to be seen from a Public Health perspective and addressed through Population Health Initiatives (PHIs).

Varied definitions have been proffered for Population Health (PH), but in summary, *Population Health basically describes the health outcomes of populations, the distribution of these health outcomes, and the many factors influencing the health of populations* (Zangerle, et al; 2016, Akarowhe, 2018). Our abilities to identifying the key determinants or influencing factors associated with certain clusters of disease conditions associated with a cohort of populations is what informs the type of intervention or policy being devised to managing such disease' health outcome. When we consider the social-economic costs and impacts occasioned by the high cost of healthcare services in the world today (Garfinkel, et al. 1988), and the gross disparities in health outcomes that still prevails despite these costly excesses, the

application of a population-based health module seem most appropriate. From this vantage point, we can better work with health systems towards strengthening the prevention of diseases and the management of health outcomes. Also, working at controlling and mitigating the impacts of the social determinants that predicate these outcomes with the aim of improving the health and well-being of populations. With the idea of PHIs still relatively new to most healthcare settings and societies, a review of relevant literatures on the core concepts, implementation, successes, challenges, and outlook of this population-based approach to health management is most appropriate.

Components of population health initiatives

Due to the daunting challenges of maintaining a healthy state through life, many average families in the developed world spends as much as 43% of their annual income on healthcare (*Bean, 2017*). The situation is much worse in the developing nations of the world where people pay for healthcare services from out of the pocket (*Schieber and Maeda, 1999*). This ever-increasing challenge of high cost of healthcare now calls for a pragmatic approach in healthcare management. The increasing dissatisfaction of patients with the quality of healthcare services despite the high cost of obtaining same now warrants a new form of competency to be developed by healthcare providers and Public Health professionals. Thus, PHIs and Management have now become key competency criteria for healthcare providers (*Bean, 2017*). As a crucial competency now required for an effective healthcare delivery system, the implementation of PHIs needs to be built on the following core components:

Focus on primary care and responsible self-health management

A system of integrated individual-centric care and attention given to the patient and populations that are at-risk by the primary care Physicians remains the focal point of health management (*Farmanova, et al. 2019*). Much however still needs to be done towards empowering the individual patient to becoming responsible for their own health and well-being. The ability to taking responsibility for one's own health is an art that should be mastered by all rational

humans. The attitude that patients have towards their own health goes largely to determining the outcome of any intervention given. Healthcare providers need to educate their patients on the need to imbibing and maintaining healthy behaviors and habits both in and out of the hospital in order to staying healthy (*Traina, et al. 2019*). The advancements in technology is now helping to contribute positively towards achieving healthy behaviors in patients. The use of cell phones and other mobile health monitoring devices are now helping a greater number of patients to monitoring their own health parameters, status, and outcomes. Reminders and readings from these devices are now helping patients to work more closely with their physicians and to restraining their unhealthy behaviors.

A data driven approach

PHIs thrive on the wheels of data. It is with data that we are able to measure and monitor the performance level and outcome of healthcare interventions (*Rubens, 2015*). Aside taking specific patient level data, other data relating to the behavioral, social, and environmental factors associated with the patient also need to be collected. This collected information will help the healthcare providers to make informed and appropriate PHI decisions. This will also help guide the initiatives and intervention strategies employed towards improving the health of the population. A harmonized system of Electronic Health Records (EHRs) need to be made available. Thus, the healthcare provider will need a solid structure and a reasonable level of investment in trainings, data base management and commitment to be able to put effective EHRs in place (*Kent, 2019*). With a solid EHRs system in place, data and information on Population Health (PH) can be better managed. As much as patient's information are meant to be kept confidential, information on PH should be shared among the hierarchies of the health system structures from the local level to the national level. This will help facilitate Public Health decision and policymaking processes. It will also help harmonize the structures of PHIs program implementations.

Physician engagements

Physicians plays major roles in the healthcare systems of any nation. Thus, having the

physicians as integral member of the PHIs team is of paramount importance. Physicians as key stakeholders in the successful implementation of PHIs programs need to bring to bear their knowledge of patient level data. The physician needs to be shown and convinced that the other data collected on behavioral, social and environmental factors associated with the health state or status of patients serves as formidable tools and forming the empirical basis for our PHIs interventions (Pereira, et al. 2019). The physician's approach and emphasis need to be the same as the approach and emphasis of the PH intervention strategies. When the physicians duly and fully take ownership of the process of PHI, this makes the work a whole lot easier for all members of the healthcare team (Pereira, et al. 2019). The emphasis is on assuring and ensuring the health of the population; and when all members of the healthcare team understands this, then we are all able to reduce healthcare costs, improve health outcome, reduce hospital admissions, and promote human health.

Patient and providers engagement

With adequate data collection and data harmonization, a perfect understanding of the aims and goals of the PHIs programs, success in this endeavor will still elude us if we fail to engage the patients and the healthcare providers meaningfully. In order to have the confidence of the patients' population, the healthcare provider needs to put the patients through the entire process of the PHIs programs (White, 2016). The patients need to understand the reason(s) and the goal(s) of the program. The patients have to know that there is a benefit in it for them. The patients need to know and understand that the PHIs objectives are solely for their own benefits and well-being. It is important that all their questions are answered and crucial feedbacks gotten from them. Effective communication with the patients will largely boost their positive engagements, contributions, and active participation (White, 2016). Their full engagement ensures the sustainability of the program and an alignment with the patients' health targets and desired outcomes.

Patients pre and post care management

Getting data or information about the behavioral, social and environmental factors or determinants affecting a patient's health is not

enough. Our engagement as healthcare providers goes further to using this array of information to engaging meaningfully with the patient both pre and post PHIs implementation. This is very crucial as the care and attention given to patients once they are out of the hospital or healthcare environment goes a long way in determining their health outcomes (Bean, 2017). Most patients need social supports in order to being able to modifying their behaviors and lifestyle to a level that meet their health needs. Hospitals and PHIs program implementers should find a way of reaching out to patients especially at the post care phase of patient management. Patients' needs to know that we care and that we are very much interested in seeing to their well-being.

The determinants of population health (PH)

The health systems in many nations of the world are faulty; and many suffers from a poor state of health emergency preparedness. The outbreak of some viral infectious diseases in the 21st century such as the *SARS Virus*, the *MERS Virus*, the *H1N1 Virus*, the *Ebola Virus*, the *Zika Virus*, and the more recent *COVID-19* outbreak in China all stands as testaments to the world's poor state of Health Emergency Preparedness. A world that is not ready for a state of health emergencies should be able to work assiduously at encouraging those practices that promotes health and prevent diseases. A range of determinants is affecting PH. These factors combined to influencing individuals and communities in a dynamic manner that both precede, predicate, and determine the outcome of health (PHS, 2020). Many studies have shown the impact of these determinants on the health outcome of populations (Kennel, et al. 1991; Belloc and Breslow, 1972; McGinnis, 2001; IMHB, 2001). These important determinants of PH have been outlined under the following categories.

Genetics

The genetic constituents of individuals and populations plays a greater part in determining the state of health and the chances of developing certain types of diseases during the course of a life time. Certain forms of chronic diseases are genetically inherited (Strohman, 1992). In addition, certain forms of genetic birth defects like the *Down's syndrome* and the *Klinefelter's Syndrome* affects both the social and behavioral

capabilities of the affected individual. Other population-based genetic defects affect entire ethnicity and race of people. For instance, it is commonly known that African-Americans men have higher chances of developing low-grade prostate cancer when compared to other races in the American society (NCI, 2019). It is also known that some certain forms of diseases rarely occurred in some races as compared to their occurrence in other races (Cooper, 2004; Russel, 2010). It has been asserted that two-thirds of obesity could be linked to genetic inheritance (Rowe and Kahn, 1997). We however do know that despite this linkage, the individual's lifestyle largely contributes towards the development of this disorder of energy metabolism. It should be noted here that the successful sequencing of the human genome has now given us more insight into the genetic basis of human diseases. This new knowledge is now serving as guide to the development of novel health treatments, management and intervention strategies (McGinnis et al, 2002).

Lifestyle

The choices we make as human beings affects the state of our health. Habits and behavioral choices, which defines our lifestyles and how we relate with others in the community largely, determines the state of our well-being. Behavioral patterns such as eating and sex habits, substance use and abuse, addictions, attitude towards exercise and safety, and the ability to cope with stressful situations all combined to determining our state of health. Annually, about 900,000 deaths have been ascribed to behavioral choices, with more than 40% being early deaths (McGinnis, 2002). Another important factor influencing lifestyle choices is culture. The culture of certain groups of people goes largely to defining their perception of ill health, their perception of pain, and their willingness to accessing healthcare services (Kahissay, et al. 2017). Many forms of traditional health practices still prevail in the world today, with some beneficial while others like the Female Genital Mutilation (FGM) being detrimental. Many pregnant women especially in the developing nations of Africa still believes in visiting Traditional Birth Attendants (TBAs) during delivery. Such women do not register for either pre-natal, antenatal, or post-natal clinics at the hospital. These women trust solely in the abilities

of the TBAs even when facing life-threatening complications. Thus, the lifestyle of a people either in behavior or in cultural norms and beliefs are both strong determinants affecting the outcomes of both individual and PH.

Healthcare interventions

The advancements in medical sciences have greatly helped in improving life expectancy all across the world (McGinnis, 2002). When people have access to quality healthcare services, and when this access is duly utilized towards the effective treatment and prevention of diseases, PH is greatly improved. It has been estimated that by year 2050, most countries in the world will be spending more than 20% of their Gross Domestic Product (GDP) on healthcare (Babalola, 2017). This projected increase in healthcare expenditure is hinged on the poor utilization of healthcare services and the increase in the prevalence of common preventable diseases (Babalola, 2017). Individuals and PH choices are directly responsible for this projected surge in healthcare spending. The lack of initiatives and the unwillingness on the part of people to taking responsibility for their own health and well-being have also contributed to this development. For instance, most obese people do not like to participate in exercise activities, and the few who participates sometimes go back sedentary and poor dietary lifestyle. This goes largely to explain why though some people regularly exercise, yet, their obesity do not abate (Butler, 2017; Lavie, et al. 2019).

Most people at different parts of the world do not visit the hospital and neither do they monitor their health status through regular medical check-ups. This cohort of population are only seen in the hospital when their health conditions have deteriorated and at a chronic stage. Thus, the attitude and dispositions of people and the individual towards healthcare services determines largely the outcome of their health state. We must encourage populations through PHIs to taking care of their own health by utilizing the healthcare services made available to them.

Social determinants

The social determinants of PH, which includes nutrition, education, income, employment, and social status all, combined in a dynamic fashion to determining the health outcome of populations.

The kind of social environment in which people find themselves and their ability to compete favorably for the available resources plays a key role in defining their health outcomes. Coupled with this is the cycle of social support network available to the individual. When people have greater supports and friendships from their family, friends, peers, and communities, they tend to do well health wise (*WHO, 2020*). In addition, the cycle of customs, traditions, and beliefs systems of the family and community members affects the health outcome of the individual. The social beliefs and norms of peers and friends can greatly influence the health of individuals and populations.

Environmental determinants

The physical environment in which humans live have the tendency to influencing their health state. The wave of environmental pollution and degradation seen in the 21st century, which is largely due to industrialization and urbanization, have posed humans to so much danger. Several natural disasters such as earthquakes, flooding and landslides have been occasioned. Exposure to toxic chemicals such as lead and carbon, the destruction of the earth's ozone layer, which has led to a state of global warming, are all testament to the increasing danger and health risks to which humans are being exposed today. Different kinds of diseases conditions and cancers are now becoming prevalent due to the excessive exposure to dangerous radiation elements in the environment. Greenhouse gases are increasingly been released and the rampant deforestation seen at different parts of the world through indiscriminate logging and bush fires have all contributed to the unhealthy state of the environment (*Saka-rasaq, 2019; Stephenson, 2010*).

The use of toxic herbicides, insecticides, and pesticides have all contributed to the destruction of the soil from which human's source their living (*Bernardes, 2015*). Some of these toxic chemicals have polluted underground waters and other surface water bodies from where humans source water for their daily usage (*Sasakova, et al. 2018*). The increase generation of plastic wastes, which have polluted most surface water bodies including the earth's oceans is now of major concern globally (*Reddy, 2018*). A clean air and safe water are needed for the well-being of humans. The safety of the environment in which

people work, the types and quality of houses in which they live, the availability of good roads and recreational facilities, good rural-urban building planning, and the state of preparedness for natural disasters are all major determining factors to the health outcome of populations (*WHO, 2020; PHS, 2020; McGinnis, et al. 2002*).

Drivers of population health initiatives

While aiming at achieving an increase in the overall health of populations and endeavoring to eliminating health inequities and disparities within populations through PHIs, several key drivers or essential elements are needed for the successful implementation of PHIs programs; these drivers includes the followings:

Individual Initiatives

The need for individuals to taking over the responsibilities for their own health cannot be overemphasized. It is common knowledge that a whole lot of the infectious and chronic diseases affecting people in the world today are largely preventable, but the majority of people have cared less for their own health and the health of others. The behavioral, attitudinal, cultural and social dispositions of some members of the human population portends a careless attitude towards personal health, and this explains the unabated incidence and prevalence of some preventable infectious diseases in the world today. Individuals needs to become active participants in the management of their personal health and well-being (*Rowe, 2017*). Individuals need to actively participate in health promotions and diseases prevention activities such as participation in regular exercises, avoidance of unprotected sex, proper dieting, and undergoing regular medical check-ups.

Community initiatives

The community plays a major role in establishing links between interventions and health outcomes. Community or system changes have been demonstrated to having positive changes on the health outcomes of adolescent and youths in the prevention of adolescent pregnancies (*Paine-Andrews, et al. 2002*). Changes in the cycles of friends, peers, and even families have been known to help in improving health outcomes. Cycles of communities surrounding individuals have potent abilities at influencing and modifying the behavioral

patterns of such an individual. In PHIs therefore, we seek to identify communities that can positively encourage individuals and other communities at working towards improving their personal health outcomes. In these communities, we seek out role models and leaders that can serve as sources of encouragement and a source of motivation to others.

Hospitals and healthcare organizations

Hospitals play critical roles in the communities in which they serve; and this is primarily to improve the health of the members of the population in such a community (*Park, et al. 2019*). Hospitals however do not work or function in isolation. Depending on the structure of the health system in any state or country, hospitals carry out their services following the standardized system of healthcare delivery models as outlined by the respective Ministries of Health (MoH). Hospitals work in synergy and in collaboration with other government health departments and units. Hospitals work with other health organizations both in the private and in the public sectors of the economy, and they also work with non-governmental institutions towards achieving health promotion and disease prevention (*Mabry, et al. 2008*). Thus, an effective collaboration and partnership is needed between healthcare providers for the successful implementation of PHIs.

Faith-based Organizations

Faith-based organizations have long been in the business of promoting both human, animal, and environmental health. However, governments and agencies of government in most nations of the world have neglected and denied support to these dedicated faith-based institutions (*Levin, 2014*). While some of these institutions are for profit, a majority of them are not-for-profit. Faith-based Institutions mostly runs on charity and donor funding. The free services rendered at these institutions have endeared them to many religious and sometimes poor citizens whose last hope for healthcare services is to go to a place where the services can be rendered free or at a reasonable cost. Through their charitable and charismatic approaches, faith-based organizations have tremendous influence on varied classes and categories of people. When these influences are adequately harnessed

through PHIs programs, tremendous positive health outcome and changes can be recorded.

International donor agencies

Many nations of the world are recipients of developmental assistance from donor agencies. This assistance largely goes into health (*Banati and Moatti, 2008*) and other sectors of the economy. Though much of this funding have been targeted towards diseases management and prevention (*Banati and Moatti, 2008*), a re-alignment of emphasis is now needed. Attention needs to be directed towards PHIs and programs that can primarily help in increasing the mean health of the population, preventing diseases and eliminating health inequalities. International donor agencies like the WHO, the Global Fund, the CDC, the USAID, the GAVI Alliance, etc. needs to provide new grants, develop and encourage new partnerships in PHIs programming. This move in the long term will be more sustainable and most cost effective. The cost benefits in the long term will also far outweigh the current billions of dollars being spent on diseases management. These agencies can also help negotiate with giant pharmaceutical and tech companies towards subsidizing the costs of their products for the ease of accessibility.

Civil Society Organizations (CSOs) and Non-governmental Organizations (NGOs)

Another important driver in the implementation of PHIs are the CSOs and NGOs (*Doyle and Patel, 2007*). All nations of the world have CSOs and NGOs working with donor agencies and funding partners to implement specific health programs. This organizations work with the various local, state, and federal ministries and departments of health towards achieving the common goal of improving health, diseases management, and diseases prevention. Because of the powerful influence of these Implementing Partners (IPs) on the health systems of different countries, they serve as key drivers in the successful implementation of the PHIs programs. They stand to provide technical expertise in the implementation of the PHIs Programs through continuous mentorship activities, monitoring and evaluation of the processes and progress, challenges and successes of the program implementation, and the constant development of indicators for Continuous Quality Improvements (CQI).

Governments

Governments are major stakeholders in the successful implementation of PHIs programs. Governments need to make available adequate infrastructures and a conducive environment for the implementation of PHIs programs. Governments need to make adequate provision for the funding of PHIs through deliberate fiscal budgeting for both programming and research (*Adshead and Thorpe, 2007*). The instruments and organs of government saddled with the responsibility of making Public Policies should also make informed and empirical Public Health Policies that are most relevant to the health needs of the people, and that would be most appropriate for the implementation of PHIs programs.

Governments should fulfill their part in the Counterpart Funding Agreement with donor agencies (*Pallage and Robe, 2015*), and they should encourage their citizens to seek for quality healthcare services through the abolition of user fees that has served as hindrance to many poor citizens seeking healthcare services. Governments should take deliberate efforts at investing well enough in the health of their citizens.

Assuring Quality in Population Health Initiatives

One very significant point to note regarding the prospect of healthcare is that its success depends on our ability to assuring the quality of our services and approaches, and how cost-effective and sustainable this services and approaches are to meeting the health needs of the population (*Sanders, 2017*). Population Health (PH) program implementation initiatives require a PH specific quality improvement processes. Many Public Health quality improvement tools such as the Westgard Rules, the Lean/Six Sigma, the Plan-Do-Study-Act (PDSA) Model, and the Standard for Quality Improvement Reporting Excellence (SQUIRE), the PRECEDE-PROCEED Model and the Community Health Needs Assessment (CHNA) Model have all contributed immensely to the Continuous Quality Improvement (CQI) processes in PH (*Kobernick, et al, 2018*). CQI activities have helped most significantly in helping to make tremendous improvement changes in PHIs programming.

The measurement of quality in PHIs programming helps us to know how well the system is performing and it draws our attention to

areas that need improvement, re-programming, and re-evaluation. In the assessment of quality in PHIs programming, good-quality data and analytical tools are required; therefore, the proper harmonization of PHIs Databases is of paramount importance. Regular database cleaning and database maintenance are also of crucial importance. The quality of individual-centric and population-based data and information collected is also very important (*Burton, 2013*). The introduction of Population Health Program Accreditation (PHPA) is serving to help in the standardization of PH management practices (*Ekram, 2019*). Relevant accreditation bodies such as this will help in strengthening and sanitizing this emerging field of Population Healthcare and Management. The quality of PHIs programming should be so integrated and flexible so much that all involved in the continuum of care including the patient or their representatives should be able to monitor what everyone is doing along the entire implementation cascade (*Sanders, 2017*).

Conclusion

PHIs are primarily structured around the domains of Primary Care (*Sanders, 2017*). Hence, focusing more on PHIs rather than being stuck with the old narratives of rural-urban health disparities should be the focus of modern-day healthcare delivery system (*Hartley, 2004*). Applying PHIs Models and approaches is far more superior to the traditional comparative effectiveness approach of traditional medicine (*Teutsch and Fielding, 2011*). For instance, participants in a recent PHI Evaluation study gained tremendous knowledge and abilities on how to managing their chronic health conditions; hence improving their health outcomes. Also, in the same study, second year medical Osteopathic students improved in their abilities to educating patients with chronic disease conditions on self-help ways to managing their health (*Stoner, et al. 2018*).

There are increasing evidence of the successful implementation and outcomes of Population Health Peace Initiatives among populations in war torn and conflict zones (*McQueen and Santa-Barbara, 2000*). In addition, due to the increasing wave of obesity in the world today, several studies have been conducted to ascertaining the effectiveness of physical exercise on weight reduction. A Population Health Initiatives study

to engaging seniors in wellness and health exercises largely proved successful, thereby leading to reduced hospital visits and admissions among this important demographic (Coberley, *et al.* 2011). More so, because of the deleterious effects of unhealthy behaviors on health and health related outcomes, PHIs to encourage changes in the health behaviors of a population of employees did produced positive outcomes (Rogers, *et al.* 2014). Thus, the application of PHIs in Behavioral Science can help in influencing and modifying the behavioral patterns of individuals and populations. Due to the effectiveness and success of the implementations of PHIs in Physical Therapy, and its positive predictive outcome in the management of populations with chronic diseases, a review article has emphasized the urgency of implementing and incorporating PHIs into Physical Therapy (Magnusson, *et al.* 2019). It should however be noted that despite all these commendable achievements, some studies have shown mixed outcomes of PHIs interventions. For example, a comparative study on strict adherence to daily-recommended level of physical exercise, and sedentary behaviors have found that engaging in sedentary habits after exercise can retrograde and reverse any achievement made in regular daily fitness exercises (Owen, *et al.* 2010).

Lastly, if we as healthcare team members are to keep up with the pace at which the world system is evolving, then we must be ready to effectively monitor, manage, and improve the health of populations through new health management approaches such as PHIs. When we consider and envision the myriads of advantages and benefits PHIs engenders, it is imperative therefore that we chart a new course towards human population health improvement and the elimination of health inequities.

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