**Module One Assignment**

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**Postgraduate diploma in Public Health**

**Question-01**

Public health is Science and Art that concerns with health of the population rather than an individual and can be defined as organized measures rendered to preventing diseases, promoting health and improving the life of the human population through organized efforts and informed choices of society ,organization, public and private, Communities and individuals. The three essential key elements of public health include the following:

**Assessment**

**Assesse** the health needs of the community. To systematically collect, assemble and make available information on public health status of the community in corporation with others including statistics on health status, community health needs, environmental health, epidemiologic and others studies of health problems.

**Investigate** the occurrence of health effects and health hazards in the community. To systematically develop in collaboration with others in the community, more detailed information on the magnitudes of the health problems, duration, trends, location, population risk, and how best to proceed to prevent or control the problems.

**Analyze** the determinants of the identified health needs. This is the processing of examining the etiologic, risk and contributing factors that precede and contribute to specific health problem or reduced health status in the community. Identifying these factors help working with the community for planning intervention efforts for prevention or control.

**Policy development**

**Advocate** for public health, built constituencies and identify the resources needed in the community. This is the process of generating support among constituent group that address the community health needs and issues establishing collaborative relationships between a public health agent and the public it serves, the government body it represents and other health and human- related organization in the community.

**Prioritize** among health needs. To facilitate a community process to rank health needs according to their importance, the magnitude, the seriousness of the consequences, economic impact and community readiness or the ability to prevent or control the problem.

**Plan** and develop policies to address priority health needs. This is the process by which agencies, working with community constituents other groups, facilitate the formulated goals and objectives to meet the priority health need of the community, identifies course of action to achieve the goals and the objectives in a way that posters community involvement and ownership and is responsive to local needs.

**Assurance**

**Manage** **resource and develop organization structures**. To Acquire, allocate influence, resources (people, facilities and equipment) and to encourage or enable them meet priority community health needs in the best possible way.

**Implement program.** Work with other organizations, agencies and individuals to assure theimplementation of the programs in the community that fit community priorities. Work with the community to change community policies, practices or morals.

**Evaluate program and provide quality assurance**. This is the process of continuous inquiry to determine the efficiency and effectiveness of efforts so that corrections can be made to improve activities and outcomes.

**Inform and educate for the public.** This is the process of informing the community about health problems, availability of services, gaining the attention of the individuals, high risk groups and constituents concerning public health issues provide health education to help develop beliefs, attitudes and skills conducive to good individual and community health.

**Question- 02**

**Population indicators:** Population refers to estimated number of people male, female and children living in specific Geographic location. The population indicator is therefore an index used to measure the population dynamic. The following are some few population indicators that influence decision making regards to a particular population.

**Infant mortality rate**: it refers to the number of deaths under one year of age occurring among the live births in a given geographical area during a given year, per 1000 live births occurring among the population of a given geographical area in the same year. Infant mortality rate (IMR) is the most widely used in demographic measures in public health because it is the most sensitive indicator for overall health and quality of life. Infant mortality rate is age specific ratio used by epidemiologists, demographers, physicians and social scientists to better understand the extent and the causes of infant deaths. The causes of infant deaths include the following; poor sanitation, poor water quality, malnourishment of the mother and the infant and inadequate prenatal and medical care. Poor education and lack of access to birth control, lead to high number of births per woman in short interval of time. High-frequency births allow less recovery for the mothers and entail potential food shortages in poor families. High infant mortality rate in a specific geographical area influence the decision of government to increase the number of health facilities in the area.

**The crude birth rate**: Crude birth rate is called ‘’crude” because it does not take account of age or sex difference among the population. It is referred to the number of live births occurring among the population of a given geographical area during a given year per, 1000 midyear total population of the given geographical area during the same year. Crude birth rate (CBR) is determined by taking total number of birth divided by the total population to obtain CBR per 1,000. Example a country with a population of 1 million and 16,000 babies were born. To obtain the CBR divide 16,000 and 1000,000 by 1000 hence the CBR is 16 per 1,000. The crude birth rate of more than 30 per 1,000 are considered high and rates of less than 18 per 1,000 are considered low. The global crude birth rate in 2016 was 19 per 1,000. Uncontrolled birth rate usually leads to population explosion that may results in over consumption of the limited resource hence scarcity and conflict set in.

**Total fertility rate:** It refers to average number of children a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rate of a given period and if they were not subject to mortality. It is expressed as children born per a woman. High fertility rate results into population explosion hence overpopulation in a particular geographically area putting stretch on the limited resources. This indictor influences the decision on provision and promotion of birth control measures.

**Question-03**

Public health professional interventions are centered on the following five strategies which tend to target diverse beneficiaries and engage distinct stakeholders.

**Protection:** The primary role of public health professionals is to protect the population against exposure to illnesses that are contagious spread from person to person or transmissible from the environmental sources. (E.g. tainted food, polluted water, and lead paint in the lodging, air pollutants associated with asthma and cardiovascular diseases and cigarette smoke). This role protects the public from the enemies of the population the microbes, bringing the power of the state to bear against the biological or environmental threats.

**Prevention:** Public health practitioners also work to identify and arrest threats to health which may or may not originate in contagions or environmental assaults before they strike. The strategies deployed by the public health professionals to prevention health threats include the following; Vaccination against six killers diseases in children and other diseases of public health concerns (e.g. Polio, Measles, tetanus , whooping cough and meningitis),screening for ever-longer list of conditions (e.g. diabetes, cancers of breast and colon).create an ambiguous partnership between public health and the medical community in defining population at risk and identifying and apply procedures and treatments.

**Promotion:** Public health practitioners always quest to keep people well, and thus they adopts means that transcend the conventional preventive agenda. The strategies conducive to ‘’health living”-which include encouragement to eat more fresh fruits and vegetables and fewer fatty, salty food and get more exercises. Thrust public health into unfamiliar preserves that tend to feature complex and sometimes indecipherable interactions between the public and private sectors (e.g. the design of built environment, the location of the stores that sell fresh food, the distribution of income and status).

**Provision of evidence for effectiveness**: assembling the evidence for effectiveness of program, interventions and services for improving population health and well- being and translating evidence into policy and programmatic actions.

**Prognosis:** Public health professional try to anticipate threats to the health of the public, surveillance and monitoring of the health conditions in the communities. The public health practitioners envision and estimate in advance as many potential threats to health as is feasible and present to the Policymakers to again an accurate understanding of the implications of the existing arrangements and of proposed public and private decision for the health of the public. They also develop and implement clinical interventions at population level, implementing programs and evaluating programs and providing quality assurance.

**Question 04**

As the head of public health in an emergency area with dilapidated sanitation and destroyed infrastructure the below are the diseases, conditions and therapeutic measures to improve the lives of the population,

**Diseases:** Disease is a disorder of structure or function in human, animals or plants especially one that produces specific signs and symptoms or that affects specific location and not simply a direct result of physical injury. Diseases that are likely to occur in an emergency area with dilapidated sanitation and infrastructure include;

**Water- borne diseases**: These are diseases that are acquired when disease- causing pathogen enters the body through drinking contaminated water. Example, diarrheal diseases mostly spread via faecal oral means i.e. Occurs when faeces which contain disease causing pathogen from one person enter the mouth and ingested by another person. It is the major risk factor in emergency and causes sickness and death among children. Diarrheal diseases easily spread in overcrowded and unsanitary conditions typical of camps and settlements in emergencies. The predisposing factors for diarrheal diseases include; drinking contaminated water with faecal materials (either at source, during transport or at the household), poor personal hygiene due to lack of water and poor food hygiene due to contamination by dirty or unwashed hands or flies.

**Water-washed diseases**: These are diseases that occur because of inadequate hygiene conditions and practices. This includes, skin and eye infections, many infectious skin and eyes diseases are related to poor hygiene and inadequate water supplies. Trachoma is the leading cause of blindness worldwide and is related to un-hygienic conditions and inadequate water supplies in dry areas of the world. Prevalence of skin and eye infection turn to diminish once there is enough water supplies to the community.

**Water- based diseases:** These include all the illnesses that spread through disease vectors that live in contaminated water. In emergency situation people tends to practice open defecation, this leads to contamination of water sources with human excreta (Urine) and diseases such as Schistomiasis, fascioloidiasis and clonorchiasis are likely to be transmitted to the population.

**Vector- borne diseases:** These are diseases transmitted by means of insects or rodent vectors. A vector is any animal capable of transmitting germs from one host to another by it bites or bodily functions. Each emergency can be characterized by different type of vectors and vector –diseases. Examples of outbreaks in emergencies include: Malaria transmitted by female anopheles mosquito that breed in the stagnant water. Dengue fever transmitted by Aedes mosquito that breeds in contaminated stagnant water. Epidemic typhus transmitted by Lice that developed due to poor personal hygiene and lack of adequate water.

**Conditions encountered in emergency area**: In an emergency situation the following are Conditions that can be encountered;

* Open defecation due to lack of sanitary facilities or people do not use the available facilities. This leads to discharged of human excreta into surface water and thus likelihood of outbreak of water-borne diseases.
* Inadequate water supplies to the population due to damage to either the existing water points or due to overpopulation from the host and affected communities leading to water shortage.
* Poor personal hygiene due to lack of inadequate water supplies or people do not wash their after defecation.
* Access of animals to living quarters, during emergency crisis, human beings tend to live with their animals due to lack of shelters and enough grazing land due to fear from the host communities hence the animals are usually kept at home or near home and can easily access the sleeping house, leading to the contamination of the rooms with animals faeces posting health risks.
* Close contact between animals and human beings, in emergency situation the population normally moves with their animals, as a result of lack of shelters to separate the animals from human, the animals usually sleep with the human beings and hence post a serious health threat to the people.
* Animals have access to well, springs and surface water as well store water and food, in this emergency setting, there is large of animals which are uncontrolled roaming in the population and hence there is likelihood that they get access to water sources and food leading to the contamination thus spread of water –based diseases in the population.
* There is lack of enough clean water containers, for collecting and storage of drinking water leading to contamination of water at the sources, during collecting and at homes, increasing the vulnerability of the population to water-borne diseases.
* Malnutrition among the children is very high in the emergency situation due to lack of enough nutritious food or lack of well-balanced food.
* Outbreak of water-borne diseases due to lack of sanitary facilities and safe drinking water is a major concern in an emergency situation hence public health intervention in provision of sanitary structures in necessary to protect lives and health.
* In any emergency areas there is likelihood of accumulation of stagnant water around the household, which becomes breeding ground for mosquitoes, Anopheles and Aedes that transmit malaria and dengue fever, leading to outbreak of these vector-borne diseases.
* Overcrowding is a major problem in emergency situation due to lack enough space for construction of enough shelters for household population, hence many people tend to live and sleep in normally small houses promoting spread of air-borne diseases like tuberculosis amongst the household population.

**Therapeutic intervention in emergency area**: At the onset of emergency the aim is to protect life and health through rapid assistance. Quickly put in place immediate measures to protect human life and health and address longer- term health interventions (focusing on most crucial aspects of environmental health). Consult with the disaster affected population to get good understanding of their needs. Identify key community leaders who can help organize the community involvement in WASH projects. Begin planning for and start implementing long-term interventions in consultation and corporation with the community. The therapeutic measures to allow people lead dignified live include the following;

* Discourage people from defecating near any water source used by people or animals, or in fields where crops are growth.
* The next step is direct defecation to confined specific area, either open defecation or trench defecation fields.
* Provide sanitary facilities for people to excrete safely and hygienically. Install communal pit latrines with 50 to 100 users per cubicle, followed by communal pit latrines with 20 users per cubicle, or household latrines.
* Protect water sources from contamination by animals or human excreta. This involves fencing the water points to keep the animals away from accessing the water.
* Provide enough safe water for drinking, cooking and essential personal and domestic hygiene. This requires water treatment at the source, during collecting or the households by use of chlorine.
* Ensure that people have enough water containers to collect and store water cleanly. Provision of plastic water containers with lids to keep water safe and clean.
* Ensure that people have the knowledge and understanding they need to avoid diseases. This can be done by community health promotors to sensitize people on the practicing personal and environmental hygiene.
* Ensure that people have soap for washing their hands. Provision of soap and hand washing plastic baskets with taps.

**Question 05**

**Open defecation** is empting of bowels in the open without use of properly designed structures built for handling of human wastes such as toilets. Open defecation is particularly associated with rural and poverty stricken part of the world as well in emergency situation where there are no sanitary facilities.

Open defecation allows transmission of all excreta- related infections and is therefore a serious health threats. Open defecation is not acceptable close to household plots, or in urban communities or other area with high or medium population. Infected person has the potential to spread the pathogens to others if sanitary facilities are not used at all or not used properly.

There are many reasons as to why people prefer open defecation to use of sanitary structures. These include; poverty that makes it a challenge to build latrines or due to lack of government support, not only that, cultural issues related to sharing of latrines among family members. Certain cultures forbid a man to share with the daughter in-law. The negative impact of open defecation can be to both human population and their environment.

**Negative impact of open defecation to human population:**

**Water-borne diseases**: Diarrhea and other problems associated with open defecation with ingesting and exposure to human waste affect children of under 5years of age the most since they are susceptible to diseases. This happens because most of open defection occurs next to water ways and rivers; the open defecator preferred this because they have the belief that the water washes away the wastes. Therefore, the results of open defecation near water way is that it is carried into water system and consequently the contaminated water end up the in main water source. When this contaminated water is use for drinking or cooking results into water-borne diseases like cholera and typhoid.

**Vector-borne diseases:** When the human excreta collect into heaps, it attracts flies and other insects. These flies travel around the surrounding carrying the faecal matter and disease causing germs on their legs where they then land on the uncovered food or drinking water, once this contaminated food or water is ingested by people, results into infections. Or the flies can land on the unwashed eyes especially in children, transmitting trachoma causing they end up acquiring trachoma. Thus the flies acting as direct transmitters of the diseases.

**Compounding the problems of disease exposure,** the saddest fact about disease transmission caused by open defecation is the cyclic nature of the problem that begins to manifest. The most common disease caused by unsanitary acts is increased cases of diarrhea, abdominal upset and poor overall health. With disease for instance, it means the people cannot make their way to distance place due to the urgency of their calls by nature, so they passed excreta close to where they have the bowel attacks.

It simply ends up creating more of the same problems that started the disease in the first and in tend leads to more people catching the disease and less people using the sanitary facilities. The result is more sick people and more opportunities for the disease to spread.

**Malnutrition in children:** Malnutrition in children is another health problem associated with open defecation. Once a child is a victim of one of the disease passed due to lack of proper sanitation and hygiene, they begin to loss lot of fluid and lack of appetite for food, results into increased in the cases of malnutrition in children. The situation is worsened by intestinal worms attacks passed through human excreta. This leads to stunted growth and weakened immune system that makes the child more susceptible to other disease such as pneumonia and tuberculosis.

**Negative impact on the environment**

**Contamination via microbes:** The environment also suffers as a result of open defecation because it introduces toxin and bacteria into the ecosystem in amount that cannot handle or break down at time. This leads to build up of filth, also the load, the load of microbes can become so great, that in the end, they end up in the aquatic system thereby causing harm to the aquatic life. At the same time, it can contribute eutrophication or formation of algal blooms that form disguising scum on the surface of water ways which disturb aquatic life underneath the water by preventing oxygen and light diffusion into the water.

**Visual and olfactory pollution:** Heaps of human excreta or just the sight of it causes eyesore and nauseate anyone who is close. The stink emanating from the refuse is highly unappealing and pollutes the surrounding air. Such places also attract large swarms of houseflies that the place completely unattractive for the eyes. This places affected by excreta, creates a sorry sight and reduce the dignity of all those living in the squalor of the place. The smells augment the problem by disguising those who live within the affected places making life awful.

**Solutions to open defecation**

To solve this issue, it takes the action of an individual or even the intervention of the government to address the cultural, economic and social challenges in the tandem.

**Provision of latrines:** There is need to ensure enough communal latrines, since the population this community is usually very poor, so it will take the government or nongovernmental NGOS and local CBOs to fix the problem. Construction of pit latrines and other toilets options such as compost toilets is necessary help deal with the problems of leaking sewer system. Government should also establish incentives for the people to build their own Toilets by providing subsidies and putting up public Toilets in strategic locations.

**Corrective civil education**: Another issue that needs to address is negative cultural association that people have with Toilets. The people need to be informed and educated to enable them break away from their cultural beliefs on issue such as the fact that Toilets are not supposed to be shared. In other words, cultural norms and beliefs must be changed over time through education and awareness. With time, people will become informed and drop the beliefs or at least adjust and concession about the ones that are most destructive.

**Incentive public hygiene participation**: By creating government programs that encourages sanitation and personal hygiene, individuals must be involved and forced to take up the responsibility of enhancing their hygiene as well as the overall health. Through such program people get to learn the importance of their environment and work towards to ensuring they do not harm themselves by partaking in open defecation. It eventually reduces he healthcare burdens on the government and lessen number of those who practice open defecation as it will be seen as a terrible activity.

**Question-06**

International nongovernmental organizations played a great role in protecting life and health in emergency situation in the developing countries. These roles can be explained in terms of the following areas of focus.

1. **Recruitment:**

International nongovernmental organizations played major role in reducing the rate of unemployment amongst the youth in developing countries by creating employment opportunities. Include recruitment of the youths to carry out vaccination campaigns in hard to-reach areas and areas that are neglected by government due to political reasons. International nongovernmental organizations employ youths to carry out community sensitization and awareness on HIV/AIDS prevention.

**Recruitment failure:**

**Brain drain**

* Despite the employment opportunities the nongovernmental organization provides, this leads to brain drain crisis in Africa as they lure the government health workers away into highly paid NGO positions leading into more severe impact on the local health system due to morale and management problems to those left behind. Instead, NGOs should strengthen local human resource capacity by working within existing salary structures and complementing local training capacity. This is the situation in South Sudan in which many Doctors left working with the ministry of health due to low and delay in salary payment sometimes five to seven months, has resulted into collapsed public health sectors.

**Management burden**

* International NGOs often promote pet projects with idiosyncratic accounting systems, individual reporting systems, and objectives distinct from those of ministries of health. These create enormous management burdens for local health officials. Disruptive fight sometimes erupt between competing NGOs as they vie for access to specific geographic or health domains, requiring mediation by local authorities. Many ministry of health officials find it impossible to refuse desperately needed resources, even when they are channeled to NGO projects and away from national priorities.
* International NGOs should instead match their resources and projects to existing ministry of health priorities and management capabilities. To do this, they should engage in joint planning and implementation, support the strengthening of existing administrative and managerial structures, and strengthen management capacity of local and national governments. The NGOs should also share budgetary and financial information.

**Fragmentation of health sector**

* NGOs are normally pressured by donors to produce short-term gains quickly (within 1 to 2years) in a limited population, creating conflict with longer-term system strengthening. Showcase projects by NGOs are frequently designed as vertical programs with no plans for expansion or sustainability, and little integration with local health systems. The result is fragmented and inequitable health care delivery, where, for example, viral load measurement may be available, but cesarean sections are not; where one district has a state-of-the-art hospital and the next district has a building serving as a makeshift health post.
* Nongovernmental organizations can minimize this fragmentation and help build a strong primary health care base by creatively integrating vertical donor-funded projects into the existing public sector health system. Donors should allow flexibility to NGOs in tailoring programs to existing conditions and systems. The code of conduct should include a commitment to help build local systems and use funding in ways that will most benefit comprehensive primary health care.

1. **Training:**

Mentorship, coaching and on job training on specific roles from skills and to semi skills E.g. language and computer skills. Such persons are trained on job to suit the specific tasks. This has promoted self-reliance amongst African youth hence reducing the rate of unemployment African youths. Nongovernmental organizations have played active role in training and organizing the rural communities into Self-help groups and empowered them through their sustainable economic development. Training of communities water management committees and repair and maintenance team has successfully resulted into constant provision of safe drinking water to the rural and communities leading to reduction faecal- oral infections and other water-borne diseases. International nongovernmental organizations conducted training of lead farmers to promote food security and livelihood amongst the rural African communities has successfully resulted into food security and reduction of malnutrition in children.

1. **Funding:**

International nongovernmental organizations funded Construction of public and house-hold sanitation facilities in disadvantage communities or markets and schools has solved the problem of open defecation that resulting into reduction of faecal-oral infections. Nongovernmental organization effectively funded the installation of safe and clean drinking water treatment plants and drilling of boreholes resulted into provision of safe drinking water to the population In the developing countries hence reducing prevalence of water-borne diseases. In South Sudan UNICEF has donated garbage collecting trucks to Juba city council to help in the collection of solid waste from households and their disposal to landfills sites. This has reduced the risk of public littering and hence environmental pollution. Not only that nongovernmental organization has played a big role in funding of vaccination campaigns throughout sub-Sahara countries by provision of vaccines freely and logistic to hard-to-reach areas, this resulted to eradication of diseases such as polio and measles in other parts of Africa. International nongovernmental organizations has contributed greatly in prevention and treatment of malaria in sub-Sahara Africa through procurement and distribution of insecticide treated mosquito nets that has led into reduction of deaths among children and pregnant mothers from Malaria, E.g. global health. NGO fundraise and mobile fund for development of primary health care and procurement of drugs, medical supplies and equipments as well as provision of technical supports. Figure below show safe and water plant in New Fangak South Sudan installed by solitary international.

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| C:\Users\WR User\AppData\Local\Microsoft\Windows\INetCache\Content.Word\IMG_20190326_111455_1.jpg  Solar powered safe and clean water plant installed by solitary international in New Fangak (South Sudan) |

**Funding failure:** lack of enough fund to install safe and clean water treatment plants to ensure enough safe drinking water for all. Most of the projects funded by international nongovernmental collapsed after the concern organization cease to function, this is because of lack of community engagement at the start of the project and sustainability by the community.

1. **Monitoring:**

Monitoring of public health projects in developing countries by international organization has contributed to the success of the project as below; Communities are involved from the project onset to identify and design the project to solve local problems and bring solution to what affects them. The communities understand contextual issues and helped to adopt best practices to bring solution to the issues affecting them. Communities are involved in daily running and implementation of project activities; they provided skill and semi-skilled labour to ensure the activities are implemented as planned. The NGO ensure implementation takes place in a transparent manner that is accountable to the affect population upheld. Communities participate in on going monitoring and assessment to evaluate and celebrate when result targets are achieved or when there is better outcome in project activities as proved health.

**Monitoring failure:**

Where there is no accountability, transparency and participation by local community there tends to be failure, hence there is need for Informed consent for all activities implemented in the communities.

Where there is no information dissemination to affected communities leads to failure because the communities are not informed about the benefits of the activities. For example when promoting use of latrines, by constructing communal or household latrines, one must understand the cultural beliefs and barriers around latrines construction, and then promote the use and utilization. If people are not informed of the usefulness of the latrines they will end up not using the latrines. Not only that promotion of condom use to prevent the transmission of HIV/AIDS has proved difficult in some African countries as a result of cultural beliefs and norms on use of condom which is viewed as act of promoting prostitution due to failure of the projects to understand and address the cultural barriers to use of condoms.

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