**Assignments number two.**

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**Question 1: why is hand washing an essential aspect in WASH intervention**?

Handwahing, also known as hand hygiene is the act of cleaning hands using clean water and a soap for the purpose of removing soil, dirt and microorganisms. And if water and soap is not available, hand can be cleaned with ash instead.

Although everyone has heard this massage that good hand washing practices are essential to protection against diseases and live a healthy life, studies indicate that many people around the globe still neglect washing their hands.

The reasons to why hand washing an essential aspect in WASH intervention are as follows:

1. Hand washing reduces risk of diseases like diarrhea and Pneumonia which killed 1.7 million children each year according to the (CDC) Centers for Disease Control and prevention. Properly hand washing and drying of hands reduces risk of respiratory illness up to 20 percent.
2. Germs such as bacteria and viruses are microscopic and cannot be seen by naked eyes. They can be found everywhere including objects like cell phone toothbrush .they can be transferred to your hands through touching the object. Therefore good hand washing will help one to avoid getting sick and spreading of germs.
3. Hand washing is the best way to prevent spread of skin infections such as chicken pox, rashes, measles, and eczema if you make sure that you wash your hands with clean water and soap before eating and after touching objects.
4. An infection of liver caused by the hepatitis A virus is spread by putting something in your mouth that is contaminated with virus. Good hand washing practices help you prevent catching or spreading the virus.
5. Hand washing is the most effective way to prevent many types of infections and illness such as poisoning from consumption of contaminated food or water.

It is also keeps the environment around you clean and like which prevent germs from spreading to others. ***https://www.timesnownews.com***

According toVIRTUOUSTRAID-food safety consulting website, (www.virtuoustraid.com)

there are 10 good reasons to wash your hands.

1. **To be healthy**; logically hand washing has proved to be the best way of your healthy against the flu, dirt and biological hazards
2. **To handle food safely**; worldwide 1out of 3food poisoning is taking place because of dirty hands and incomplete hand washing.
3. **To avoid killing somebody**; 3.000 souls in united state are lost due to food poisoning (source:CDC) 351000 people are dying globally because of food poisoning (source: WHO)
4. **To avoid sending somebody to hospital**: also in USA 128.ooo people are hospitalized every year because of food poisoning (source:CDC) and 5.946 in E.U in 2013 (source: EFSA)
5. **To be example**; scientific studies shown that hand washing behavior of seniors has influences on junior staffs (senior act as role models).
6. **To minimize the risk of transmitting the diseases that can cause blindness** e.g. trachoma, schistosomaiasis.
7. **To honour the effort of your parents**. Assuming that the parent’s advice the child each day wash hand with clean water and soap for lunch/super/dinner until the age of 12 the child starts to wash hands regularly then the child has honored the effort of the parents.
8. **To boost your organization reputation on hand washing** that count twice if you are working in the food sector and customer see restaurant’s personnel washing their hands , not only the customer feel more safe to consume the cooked food but they also spread the word to their friends.
9. **To reduce company cost from possible food poisoning** in case a food company is responsible for food poisoning insurance fees are elevated because according to **HUFFINGTON** **post**, food poisoning cost roughly $ 70 billion a year in the **USA** alone.
10. **To be shine**; it is like a smile always clean hands give one the feeling of a fresh morning shower. When wash our hands we also wash our minds clean.

www.virtuoustraid.com

**Questions 2.what are the main standards in the WASH interventions in emergencies**?

The main and common standards which cover participation, intial assessment, response, monitoring and evaluation are as following:

1. **Hygiene promotion standard 1: Programme design & implementation.**

Hygiene promotion is defined as the mix between the population knowledge and resources which together enable risky hygiene behaviors to be avoided.

In this standard all affected men, women and children of all ages are to be aware of key public health risk and are mobilized to adopt measures to prevent the deterioration in hygienic conditions and to use and maintain the facilities provided. www.spherehandbook.org

Also there is sharing information between the agency and the targeted community to identify key hygiene problems, design, implement and monitor the programme to promote practices and ensure the proper use of facilities with the aim of achieving the best impact on public health. It must be caution that hygiene promotion should not be a substitute for good sanitation, water and supplies. www.spherehandbook.org.

1. **Water supply standard 1: Access and water quantity.**

In this case people must have safe, equitable and access to a sufficient quantity of

Water for drinking, cooking and personal and domestic hygiene .for example the water use for drinking, cooking and personal hygiene per a household should be 15 litres per a person in a day.

Also the distance fro and to the nearest water facility should be at least 500 metres and in case for many people on the facility, the queuing time should be at least 15 minutes as well as not more than 3 minutes for filling 20 litres jerricane and moreover maintaince of water facility have to be put in consideration so that quantity of water are available regularly.www.spherehandbook.org

**Water supply standard 2: Water quality.**

Water supply have to be safe and water have to be tasted well (palatability of water), and of sufficient quality to be drunk and used for both personal and domestic hygiene without doubt of significant health risk. For example sanitary survey which cover contamination source at water point, in transportation and in the home as well as defecation and management of waste have to be done. www.spherehandbook.org.

**Water supply standard 3: water use facilities and goods.**

There must always to be enough clean water storage containers, say two to three water collecting containers of 10-20 litres with the covers,250g of soap per a person in a month. Two different cubicles for male and female as well as one basin per100 persons and private laundering for ladies to wash and dry underwear/undergarments. Also disable persons and people living with HIV/AIDS (PLWI/A) need small and specially designed water container and for the amount of storage capacity depend on the size of household(HH) and consistency of water e.g. 4 litres of water per a person if daily supply of water is constant.www.spherehandbook.org.

1. **Excreta disposal standard 1: Access to, and numbers of, toilet.**

Disposal of human excreta safely is the first barrier to excreta related diseases, it reduces transmission route either directly or indirectly.

Therefore in excreta disposal standard 1, people are expected to have adequate numbers of toilet close to their dwelling to allow people safe and acceptable access at all the times throughout the day and night.www.spherehandbook.org.

**Excreta disposal standard 2: Design, Construction and use of toilets.**

In this standard it explains that toilets are well sited, designed, constructed and maintained in safe and hygienic manner, that mean they can be accessible to everybody i.e. children, old people , disables and pregnant mothers as well as the privacy should be in paramount.www.spherehandbook.org

1. **Vector control standard 1: individual and family protection.**

Under this standard all people affected by the disaster are required to have the knowledge and the means to protect themselves from diseases and disease-carrying agencies like mosquitoes which transmit malaria, yellow fever and dengue hemorrhagic fever and non-biting/synanthropic flies like housefly, blowfly and flesh fly which are responsible for the transmission of diarrheal diseases.www.spherehandbook.org

**Vector control standard 2: physical, environmental and chemical protection measures.**

In thisstandard, siteselectionis important to minimizing the exposure of the population to the

risk of vector-borne disease like malaria and yellow fever. For instance when considering site with regard to malaria control, camps should be located at 1 to 2 kilometres in the direction from which the wind is blowing (upwind) from large breeding sites such as lakes and swamps.

Also proper disposal of refuse control flies and rodents and drainage of stagnant water to control mosquitoes.www.spherehandbook.org.

**Vector control standard 3: Chemical control safety.**

For this standard, chemical vector control measures are carried out in a manner that ensure that staffs, people affected and the local environment are protected. For example, personnel training, protective cloth, use of bathing facilities are provided as well as number of hours spent handling chemicals is restricted. Also community is informed about risks of substances used in chemical vector control and its application.www.spherehandbook.org

1. **Solid waste management standard 1: Collection and disposal.**

Here all people are expected to have acceptable environment that is free from contamination of solid waste and medical waste and also have the means to dispose of both solid and medical waste effectively.www.spherehandbook.org

1. **Drainage standard 1: drainage works**

People have an environment in which the health and other risks like water erosion and standing water are minimized.E.g.areas like around water points and home state have to be freed from standing water. They also have to make sure that path, shelter and water & sanitation facilities are not flooded and eroded by water.www.spherehandbook.org

**Question 3. Waste management is becoming one problem in the emergencies. Why?**

**Def:** Waste management is an activity and action required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment together with monitoring and regulation of the waste management process. According to **MedPro Waste Disposal LLC,** on its website, www.medprodisposal.com**,**World Health Organization (WHO) has stated that improper disposal of medical waste can cause diseases like.

* **Parasitic infections.**

A parasitic disease, also known as parasitosis is an infectious diseases caused or transmitted by a parasite. Many parasites do not cause diseases as it may eventually lead to death of both organism and host. Parasitic diseases can affect practically all living organisms in cluding plants and mammals. Others grow, reproduce, or invade organ system that makes their host sick resulting in parasitic infection.

Parasitic infections are the biggest problems in tropical and subtropical regions of the world.Malaria, trichomoniasis, giardiasis, toxoplasmosis and cryptosporidiosis among others are good examples of common parasitic infections. https://www.healthline.com

* **Lung infections.**

Lung diseases affecting the alveoli include: Pneumonia: An infection of the alveoli, usually by bacteria.

Tuberculosis: A slowly progressive pneumonia caused by the bacteria mycobactererium tuberculosis.

Pulmonary edema: Fluid leaks out of small blood vessels of the lung into the air sacs and the surrounding area. https://www.webmd.com.

* **Skin infections.**

Common skin infections caused by bacteria include staph infections, cellulitis, boils, carbuncles, and impetigo.

Common viral skin infections include warts and herpes simplex. Athlete’s foot and ring worm are skin diseases caused by fungi. https://www.healthline.com.

* **HIV and Hepatitis B and C viruses.**

They share the most important forms of transmission, in particular sexual, by blood and vertical (mother to child) transmission.www.scielo.br>scielo

* **Candida.**

Candida is a fungal infection due to any type of Candida (TYPE OF YEAST).when it affects the mouth, it is commonly called thrush. Signs and symptoms include white patches on the tongues or other areas of the mouth and throats. Other symptoms include soreness and problems in swallowing.https:www.medicalnewstoday.com

* **Meningitis.**

Meningitis is an inflammation (swelling) of the protective membranes covering the brain and spinal cord. A bacterial or viral infection of the fluid surrounding the brain and spinal cord usually causes the swelling. However injuries, cancer, certain drugs and other types of infections also can cause meningitis.

* **Bacteremia.**

Bacteremia is the presence of bacteria in the bloodstream. It may result from ordinary activities such as vigorous toot brushing, dental or medical procedures or from infection such as pneumonia or urinary tract infection.https:www.merckmanuals.com

People in emergency situations are generally much more susceptible to ill and death from diseases that are related to inadequate sanitation, waste management, water supplies and poor hygiene conditions. [www.open.edu.com](http://www.open.edu.com).

Moreover waste disposal has huge impact on environment and can cause the following problems.

1. Some waste eventually rot but not all and in the process it may smell or generate methane gas which is explosive and contribute to **green house** effect.
2. Leachate also produces as waste decomposes and cause pollution.
3. Badly manage landfill site may attract vermins, scorpions or cause litter.
4. Incinerating waste causes problems, because plastics tend to produce toxic substance such as dioxins when they are burnt.
5. Also gases from incinerations cause air pollution and contribute to acid rain, while the ash from incinerators may contain heavy metals and other toxins. <https://www.open.edu.org>,

Lastly, most landfill lack proper on-site waste management, thereby contributing to additional threat to the environment. In long term, landfill leak and pollute ground water and other neighboring environmental habitats, making waste management very difficult. They also give off potentially unsafe gases. <https://www.conserve-energy-future.com>

**Question 4.Discuss how environmental health and sanitation affect the nutritional status of the vulnerable groups.**

Vulnerable population/group has a broad and flexible definition in the context of environmental health factors which include,

1. Intrinsic biological factors.

And intrinsic vulnerable factors include age, life stage such as pregnancy, gender, ethnicity and genetic polymorphisms.

1. Extrinsic exposure-related factors.

Extrinsic vulnerable factors include socioeconomic status (SES), health status, nutrition status, geographic proximity to source of exposure and various life style choices.

The developing fetus for example is unique vulnerable to the effect of environmental exposure due to intrinsic biological factors.

Individual or subgroup with genetic polymorphisms may be vulnerable to environmental exposure because of differences in the way the body accumulates, distributes and eliminates environmental chemicals.

Low SES (socioeconomic status) individuals are more vulnerable to the adverse health effects of environmental exposure due to intrinsic factors e.g. higher smoking rates (compare to general public) and increased like hood of living near hazardous waste sites, industrial facilities and major roads.

According to **Environment Health Fund (EHF) report 2017**, for example in Israel main population with increased sensitivity to environment exposure is;

**Children and Pregnant women**.

Here the developing fetus is extremely vulnerable to environment pollunts.the vital system e.g. nervous and respiratory system and metabolic pathways in the fetus, body are still developing. Hence environmental exposure at that early stage of life prolongs period in which chronic illness may develop as result of exposure.

Children spend more times outdoor which increase environmental exposure to pollutants. It is noted that Israeli population o children make up to 30%.

The fertility rate is high in Israel with average of 3.13 children for both Jewish and Arab women.

Additional research on pregnant women stated that insufficiency of iodine in pregnant mothers is also a problem.

**Arab population.**

The Arab population which makes up 20.8% of the total population is more expose to tobacco smoking. According to **Environment Health Fund (EHF) website www.ehf.org.il**, the Bedouins in southern Israel are the vulnerable population due to their socioeconomic status (SES), high smoking rate, aspect of their traditional lifestyle and the lack of infrastructure in villages.

In addition, health and morbidity among pediatric Bedouins population is 39% living in unrecognized villages, where people live in prefabricated houses, shacks or tents without water and electricity as well as the gas stoves or open fires are used for cooking and heating. Therefore due to these living conditions, Bodouins in southern Israel are exposed to indoor air pollution and the effects of the extreme weather conditions such as heat waves.

**Individuals with chronic diseases and elderly.**

Individuals with chronic diseases and elderly peopleliving with diseases such as asthma and diabetes may be more vulnerable to effects of environmental pollutants and because of the deterioration of their physiologic, biochemical and immunologic parameters, elderly may be more sensitive to environmental pollunts.

Also lack of information, resources and choices can exacerbate the vulnerability of low SES individuals. https://www.ehf.org.il.

Other environmental health and sanitation that affect vulnerable people when poorly managed are:  **Water and sanitation infrastructure flood and over-saturate soils.**

In this case puddles and pools become a breeding ground for disease-carrying insects, or faeces can end up in the soil and lead to intestinal worm infections. Poor waste management, lack of sanitation and contamination of watercourses are problems linked to poverty and are just some of the ways in which faeces can enter the environment and cause diseases to vulnerable people. If sanitation is inadequate, there will be more faeces in areas where people live and work, from where it can pass through fingers, food, fluids and flies and finally into the mouths. If drinking water is contaminated, people will take it in directly. And if there isn’t enough water for washing, it is far harder to keep food and hands clean enough to block transmission. Example of faecal-oral diseases includes cholera**,** dysentery, typhoid and giardiasis.

Many diarrheal diseases are faecal-oral, and are a severe health burden to vulnerable population, particularly for children. And according to [www.irishaid.gov.ie](http://www.irishaid.gov.ie) website, 1.8 million people who die every year, over 90 per cent are children under five.

**Water-borne disease, resulting from poor sanitation.**

Water-borne diseases are condition caused by pathogenic microorganisms that are transmitted and spread in water hence cause severe life threatening diseases like typhoid fever , cholera and Hepatitis A or E to children, pregnant mothers and elders.

**Question 5 Assuming you have been appointed to head an organization dealing with health development in your area, describe the critical factors that you will consider in planning for health service in that area.**

Def: Health service planning has been defined as,

A process that appraises the overall health needs of a geographical area or population and determines how these needs can be met in the most effective manner through the allocation of existing and anticipated future resources.www.healthknowledge.org.uk.

The state of Queensland government (Queensland Health) 1996-2019.Health service planning , in its website [www.health.qld’gov.au](http://www.health.qld'gov.au) defined health service planning as where one want to go, how to get there and the timetable for the journey. It also defines as to improve the health status of a given population while safeguarding equity and fairness of access as well as responsiveness of the health system to the perceived needs of the community.

Within the health service planning, there are two broad types of planning**.**

**1. Activity planning.**

It concerned with the maintaince of the existing situations and setting of monitoring and implementation timetable.

**2. Allocative planning.**

Here it concerned with the possibility of change and the making of decisions on how resources will be undertaken.www.healthknowledge.org.uk.

**Factors consider in planning for health services.**

There are number of factors considered when planning for health services in geographical area or population as below, <https://www.healthknowledge.org.uk>

1. **Changing population and population needs.**

This involved the assessment of population characters like age grouping, growth, cultural diversities and socioeconomic status. Also preventive changes, guide the most appropriate service response. Moreover an identification of population risk factors like smoking, obesity and excessive drinking of alcohol that contribute to health issues can be designed to reduce risk for targeted population group.

2. **Emerging clinical evidence and technologies.**

Assessing and knowing the potential impacts of advances in clinical evidence and technologies helps inform the way the future services need to be organized and deliverd.This include awareness of changes in the knowledge and understanding of diseases and diseases trends, treatment techniques and services delivery model.

1. **Projecting future services need.**

It involves understanding of the future demand for services i.e. influenced by changes in population, disease patterns and treatment technologies. Also by assessing how demand may grow or decline decisions about future services developments are better informed.

**4. Allocation and prioritization of resources**

Health service planning can identify healthy services resources needed to meet health needs.

When health service issues identified through health service planning process, then it will help support being directed toward prioritized areas of the greatest need.

**5. Improving service efficiency.**

Health service planning explores alternative service option that can optimize service delivery arrangement to manage increasing demand. Advance in treatment options and delivery services in a range of settings allow for substantial flexibility in health service delivery in the future.

**6. Provision of safe and sustainable health services.**

Health services must be capable of sustaining the provision of high quality care that continues to meet required minimum standard. Health service planning considers issues of services viability when planning future services. <https://www.healthknowledge.org.uk>

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