**Assignments number four.**

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**Question 1. Define Data. Why is it paramount to for Public health professional to take comprehensive individual data?**

IMPORT.OI (2018) defines data as “a collection of facts (numbers, words, measurements, observations, etc) that has been translated into a form that computers can process”.

In general, data is simply another word for information. But in computing and business (most of what you read about in the news when it comes to data – especially if it’s about Big Data), data refers to information that is machine-readable as opposed to human-readable.

According to DCODE GROUP PTY LTD (2019)" data is facts and statistics collected together for reference and analysis. In contrast, information is the interpretation/manipulation of data into a meaningful form to the end user (or processed data). Too often in business, data and information are used interchangeably when in fact they are very different - and understanding this can assist you in interpreting each in your own business.

It is important for public health professional to take comprehensive individual data because data is essentially the plain facts and statistics collected during the operations of a business. They can be used to measure/record a wide range of business activities - both internal and external. While the data itself may not be very informative, it is the basis for all reporting and as such is crucial in business.

Customer data are the metrics that relate to customer interaction. It can be the number of jobs, the number of enquiries, the income received, the expenses incurred, etc. In order to know about our interactions with the customer, we need data (DCODE GROUP PTY LTD 2019).

According to Skills for Care (2015), there are 6 reasons why information and data is important when running a successful social care business,

**1. Fit for purpose.**

By gathering information about the services you provide, you can identify and then meet the needs of your customers. This shows that your service is fit for purpose – not only for those who use the service but also for commissioners and decision makers who ultimately, decide how social care is funded.

**2. Better continuity of care**.

By working proactively, you can ensure that information is shared in a safe and efficient way. This is so that when people are moving from one service to another, reliable, accurate and relevant information is shared between those services. This means ultimately, they will receive better care and support.

**3. Supports safeguarding**.

Accurate information shared at the outset of a care package / care plan ensures that people receive exactly the support they need to keep them safe and well. Correct and detailed information can ensure there are fewer mistakes with the care provided and people can receive exactly the care and support they need.

**4. Promoting transparency**.

Having good information ready, i.e. all the types of service provided and costs involved, means there are no hidden surprises or shocks for anyone who might need care and support or their families. The Care Act has a strong focus on making sure the right information is available at the time they need it, and in a way that is helpful to them.

**5. Cost savings**.

Lost information, inefficient handling of information, or constant changing of services or providers can ultimately cost you more money.

**6. Stand out from the crowd.**

By knowing and comparing (benchmarking) your business against others, you can find out what you offer that others don’t, and use this to your advantage.

As stated by Moreno (2019) **Good-quality data has several beneficial impacts on organizations:**

1. **Decision making:** The better the data quality, the more confidence users will have in the outputs they produce, lowering risk in the outcomes and increasing efficiency. The old “garbage in, garbage out” adage is true, as is its inverse. And when outputs are reliable, guesswork and risk in decision making can be mitigated.
2. **Productivity:** Good-quality data allows staff to be more productive. Instead of spending time validating and fixing data errors, they can focus on their core mission.
3. **Compliance:** In industries where regulations govern relationships or trade with certain customers, especially in finance, maintaining good-quality data can be the difference between compliance and millions of dollars in fines. Compliance must be an ongoing focus as new regulations continue to evolve in regions around the world and wherever a company conducts business. Graph databases are emerging as an important tool for finance firms to understand the complex relationships among their customers and comply with anti-money laundering regulations.
4. **Marketing:** Better data enables more accurate targeting and communications, especially in the Omni -channel environments many organizations are striving toward.

**2. Identify six institutions or organizations that provide health services in a country or state and briefly discuss the roles played each of them.**

The term "institution" commonly applies to both informal institutions such as customs, or behavior patterns important to a society, and to particular formal institutions created by entities such as the government and public services. Primary or meta-institutions are institutions such as the family that are broad enough to encompass other institutions. Therefore in this context we are talking of formal institutions created by government and public services and NGOs dealing in health services in a country and state.

# [Ministry of Health Republic of South Sudan (MOH-RSS).](https://moh-rss.org/" \o "Ministry of Health Republic of South Sudan)

The Ministry of Health was established among the government institutions including the Ministries and commission. It evolved over the year to become the Ministry of Health of the Republic of South Sudan after the independence 9th July 2011. The Ministry of Health is comprised of nine Directorates and the Medical Commission. It directly oversees the National Teaching Hospitals (Juba, Malakal, and Wau), and the Central Medical Stores. It is supported by the Drug and food Control Authority and Medical Council.  
The Directorates in the Ministry are headed by a Director General, Who is responsible for planning and budgeting within the directorate, overseeing day-to-day operation, ensuring that all Departments are working in line with the Ministry’s articulated policies and contributing to the development of new policy and strategy papers within the Ministry. The medical commission is headed by executive Director. The Director General and executive Director all report to undersecretary who turn report to the honorable minister of Health, The main mission of ministry of health is to improve the Health status of the population and provide quality Health care to all people of South Sudan, most especially the vulnerable women and children (MOH-RSS 2019).

**b). South Sudan General Medical Council (SSGMC).**

The South Sudan General Medical Council (SSGMC) is an autonomous body responsible for the registration and regulation of medical, dental and pharmaceutical professions as well as regulation of health institutions and services in the country. The SSGMC performs the following functions,

* Licensing and Registration of Medical Doctors/Dentists and Pharmacists.
* Licensing and Registration of Medical Institutions including Hospitals, Nursing Homes, Clinics etc
* Licensing and Registration of Teaching and Referral Hospitals.
* Licensing and Registration of Internship Training institutions.
* Licensing and Registration of centres Medical Education Training.
* Handle Complaints from the public about Medical Practitioners, Dentists and Pharmacists.
* Handle Complaints from the public about Medical Institutions.

The main mission of SSGMC is to ensure high standards of education, training and practice among doctors, by providing oversight to medical training and licensing of healthcare providers and practitioners (MOH-RSS 2019)

**c). World Health Organization (WHO).**

The World Health Organization (WHO) was established shortly after World War II as a multilateral health organization to unite countries in the common goals of tackling disease and achieving better health globally. The organization recruits experts with a wide array of expertise, including medical doctors, researchers, epidemiologists, administrative staff (financial and information systems), statisticians, economists, and other related fields to operate a wide range of programs and projects in South Sudan and worldwide (University at Albany 2019).

**d). United States Agency for International Development (USAID).**

The United States Agency for International Development (USAID) is one of the largest bilateral agencies involved in global health efforts. It is the lead U.S. government agency that strives to end extreme global poverty while assisting resilient, democratic societies to realize their potential. USAID in South Sudan provides funding for and supports health initiatives in areas such as emerging pandemic threats, family planning, HIV and AIDS, health systems strengthening, malaria, maternal and child health, neglected tropical diseases, nutrition, and tuberculosis (TB) (University at Albany 2019).

**e). Doctors without Borders/Medecins sans Frontiers (MSF).**

Doctors without Borders/Medecins Sans Frontieres **(MSF)** are an organization that strives to help people worldwide where the need is greatest. In South Sudan MSF is responsible for delivering emergency medical aid to people impacted by conflict, epidemics, disasters, or lack access to care (University at Albany 2019).

**f) Population Service International (PSI).**

According to the University at Albany (2019), PSI helps build strong health systems in the private and public sector by using the expertise of over 8,900 local staff located in more than 65 countries globally including South Sudan. Their works include;

* Case management, which involved rapid diagnostic testing and treatment with artemisnin-base combination therapy.
* Case identification, tracking and treatment for elimination of malaria.
* Prevention through mass distribution of long-lasting insecticide treated net.

**Question3. Discuss the principles of Public health in the concept of health systems management.**

Health is a state of complete physical, mental and social well‐being and not merely an absence of disease or infirmity. W.H.O. (1948).

According to “ILTS Health Education (2015)” Public health is the science of improving and protecting the health of entire communities by applying the principles of education, preventative medicine, control and monitoring of environmental dangers, and proper sanitation.

Using public health principles to improve the health of our community, therefore definition of public health mentions that we use principles of sanitation and **sanitation** is a word that refers to the use of measures that promote health and prevent disease. This means making sure people live away from human and animal waste as well as carcasses of dead animals. It also means providing clean water.

Over time, sanitation improved, and we began to control how sewage, wastewater, and even household chemical hazards could be stored and disposed of. Public and community health improved because diseases, such as the plague, could be stopped quickly or prevented! Also, the smell around our homes improved too. This way we killed two birds with one stone and, of course, disposed of their carcasses properly to prevent any diseases from spreading (ILTS Health Education, 2015).

 Regardless of the environment one live in, our community need a healthy ecosystem to support a healthy population. By monitoring and controlling how an ecosystem is affected by everything from human to industrial waste, we can control how public health is impacted. In other words, if we keep our environment healthy, we are more likely to be healthy as well. For example, individuals who live in environments where the air, water, or land are negatively affected by pollutants are more likely to suffer from Asthma, cancer, cardiovascular damage and premature death. For instance a doctor can treat your asthma or your cancer, but he or she cannot really prevent you from getting it in the first place. This is where public health policies take over in order to impact the entire community's health. Whether it's banning the building of a noxious waste incinerator near a kindergarten school or promoting the re-planting of an entire forest, such public policies aim to directly improve the environments we live in so that our health improves as well (ILTS Health Education, 2015).

The World Health Organization (WHO) defines health systems as all organizations, people, and actions whose primary intent is to promote, restore, or maintain health. This includes efforts to influence determinants of health as well as more direct preventive and curative activities. WHO describes health systems as comprising six interrelated building blocks, service delivery, fielding a well-performing health workforce, maintaining a functioning health information system, providing access to essential medical products, vaccines, and technologies; provision of adequate financing; and leadership and governance.

 Generally health system management defined as those activities that aim to improve a country's ability to successfully perform the essential functions described or implied by WHO's building blocks. Key concepts within health systems strengthening include capacity building (within both the public and private sectors), sustainability, equity, effectiveness, and efficiency.

**Question 4.Give merits and demerits of Public Health Surveillance.**

WHO, (2019) defined Public health surveillance as the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice. Such surveillance can:

* serve as an early warning system for impending public health emergencies;
* document the impact of an intervention, or track progress towards specified goals; and
* Monitor and clarify the epidemiology of health problems, to allow priorities to be set and to inform public health policy and strategies.

**Uses of Public Health Surveillance.**

* Estimate magnitude of the problem.
* Determine geographic distribution of illness
* Portray the natural history of a disease
* Detect epidemics/define a problem
* Generate hypotheses, stimulate research
* Evaluate programs & control measures
* Monitor changes in infectious agents
* Detect changes in health practices and behaviors
* Facilitate planning.

**Merits and demerits of public health surveillance**.

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| **Merits of public health surveillance.** | **Demerits of public health surveillance.** |
| **1**.Helps in estimating the magnitude of the problem | **1**. Surveys give information about population at one point in time and might not represent in other time frame. |
| **2**. Surveillance is an ongoing process therefore data collected can help in describing the natural history of the disease. | **2**. Require more resources to set up and maintain the system. |
| **3**. Surveillance system also helps in determining distribution and spread of illness. | **3**. Public health surveillance Labor is intensive. |
| **4**. Surveillance system can be used to improve prevention programs. | **4**. Difficult to sustain over time. |
| **5**. It detects outbreaks of diseases. | **5**. It is costly. |
| **6**. Surveillance monitors changes in infectious agents. | **6**. Amount of data available is limited. |
| 7. Detect changes in health practices. | 7. May not be representative. |
| **8**. Facilitate planning. | **8**. Low sensitivity. |

Tielsch, (2004).Public Health Surveillance: Methods and Application.

**Question 5. As a newly employed health research manager, briefly explain what types of epidemiological studies you would think of in order to describe the association between the occurrence of disease and factors that influence the occurrence.**

Epidemiology is the studyof the distributionand **determinants** of health-related states oreventsin specified populations, and the **application** of this study to the control of health problems (epidemiology 2019, p 5).

However, Epidemiology is also used to search for **determinants**, which are the causes and other factors that influence the occurrence of disease and other health-related events. Epidemiologists assume that illness does not occur randomly in a population, but happens only when the right accumulation of risk factors or determinants exists in an individual. To search for these determinants, epidemiologists use analytic epidemiology or epidemiologic studies to provide the Why and How of such events.

As a newly employed health research manager, I would think of Observational studies to describe the association between the occurrence of disease and factors that influence the occurrence, reason being that observational studies(cohort and case-control studies) are only able to measure associations between disease occurrence and possible causative agents; they do not necessarily prove a causal relationship. For example, suppose a study finds an association between heavy coffee drinking and lower incidence of skin cancer. This might suggest that coffee prevents skin cancer, but there may be another unmeasured factor involved, such as the amount of sun exposure the participants receive. If it turns out that coffee drinkers work more in offices and spend less time outside in the sun than those who drink less coffee, then it may be possible that the lower rate of skin cancer is due to less sun exposure, not to coffee consumption. The observational study cannot distinguish between these two potential causes.

Moreover there are several useful approaches in observational studies. These include methods classified as descriptive epidemiology and analytical epidemiology. **Descriptive epidemiology** gathers information about a disease outbreak, the affected individuals, and how the disease has spread over time in an exploratory stage of study. This type of study will involve interviews with patients, their contacts, and their family members; examination of samples and medical records; and even histories of food and beverages consumed. Such a study might be conducted while the outbreak is still occurring. Descriptive studies might form the basis for developing a **hypothesis of causation** that could be tested by more rigorous observational and experimental studies.

Cohort studies and case control studies are two types of observational studies.

**Cohort study:** For research purposes, a cohort is any group of people who are linked in some way. For instance, a birth cohort includes all people born within a given time frame. Researchers compare what happens to members of the cohort that have been exposed to a particular variable to what happens to the other members who have not been exposed (Institute for Work & Health, 2005).

**Case control study:** Here researchers identify people with an existing health problem (“cases”) and a similar group without the problem (“controls”) and then compare them with respect to an exposure or exposures (Institute for Work & Health,2005).

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