Section-1

1) ‘Epidemiological methods help in measuring and describing the causes and consequences of disasters.’ Elaborate.

Ans: Disaster epidemiology is the study of the effects of disasters on human populations, mainly by the use of data collection and statistical analyses and particularly with the aim of predicting the impacts of future disasters. Insight into how a disaster can impact the health and function of populations enables experts to quickly identify needs, plan appropriate responses, gather necessary resources, and facilitate recovery activities. The epidemiologic investigation of disaster events focuses on two approaches. The first is the study of the underlying causes of the disaster. This may focus on the event itself or the mortality and morbidity associated with the event. Learning as much as possible about the reasons for disasters is important for developing population-based prevention activities in the future. The second approach is to use epidemiologic methods to investigate mechanisms for alleviating the burden of a disaster once it occurs. The most direct applications of epidemiology in this situation are the establishment of surveillance systems to identify injuries and the possible emergence of communicable and mental health diseases, the deployment of rapid needs assessment to identify and prioritize solutions to existing problems, and analytical studies of risk factors and the natural history of health events.

Historically, in many areas, disasters were viewed from a fatalistic perspective, and even in the 21st century many people still believed disasters were simply a feature of life. Research had shown, however, that with proper preparations—from ensuring the safe construction of buildings and dwellings to providing the public with educational materials and allocating necessary resources—societies can effectively mitigate the circumstances arising from a disaster. Hence, from a public health perspective, disasters are defined based on their impacts to societies. In general, a disaster is considered to be an event that disrupts the ability of a society to function, resulting in widespread losses of human life or extensive damage to property or the environment. The disruption and suffering exceed local response resources, and as a result, the society requires aid from external sources to cope and recover.

The frequency of an event and the magnitude of its impact influence whether an event is regarded as a disaster. Events with a low frequency in occurrence and a high magnitude of impact (in terms of large economic and human losses) are usually declared disasters by government authorities. Events with a high frequency of occurrence and a low magnitude of impact might be regarded as normal or routine events. The determination of what levels are high and what levels are low, however, can be subjective and may vary by culture, prior history with the event, and ability to respond to the event. Thus, a disaster of similar characteristics might be viewed differently in different settings. Efforts to standardize the definition of a disaster, however, have helped moderate calls for external assistance, ensuring that affected societies receive necessary amounts of aid.

Many different types of events can lead to situations that overwhelm local institutions and require external assistance. As a result, crude classification schemes for disasters have been incorporated into the discipline of disaster epidemiology. Most commonly, disasters are classified as either natural or human-made. Natural disasters include situations brought about by extreme climatological, geological, or ecological events. Droughts, floods, windstorms, earthquakes, tsunamis, and volcanic eruptions are common natural disasters. Human-made disasters can include industrial accidents and acts of terrorism. The displacement of large populations as a result of war has also been identified as a form of disaster.

Epidemiologic response to disasters
Epidemiology and the related methods of epidemiological practice are valuable components to disaster response and disaster planning. The main goal of epidemiology in a disaster situation is to measure and describe the frequency of health events related to the disaster, to identify the factors contributing to these effects, and to identify potential interventions to alleviate the impact of these issues. Rapid needs assessments and surveillance activities are common practices undertaken in the aftermath of a disaster to address this broad goal. Further epidemiological studies may be conducted to identify risk factors, prioritize health interventions, match resources to needs, or to evaluate an intervention’s effectiveness. Epidemiology can contribute to the understanding of the management and preparedness for disasters. This contribution can be directed at identifying and assessing factors related to the development of disasters, the public health response to disasters, an examination of the health effects of disasters, and the identification of groups in the population at particular risk for adverse health effects. Disasters are complex events, and practitioners in disaster epidemiology activities face many challenges, including establishing communications with professionals from different disciplines, dealing with constraints on the collection and analysis of data, and working in the context of changing social and political environments. The analysis of past disasters has provided important clues to the reduction of mortality and morbidity in future events. Unique patterns of death and injury have been noted among different classifications of disasters. In long-term analyses, researchers are able to gain understanding of potential chronic health effects of disasters.

2) Describe immunisation and vector control measures towards prevention of risk in health management at times of disasters.

Ans: IMMUNIZATIONS FOR DISASTER MANAGEMENT

Tetanus toxoid - A single dose of Tetanus/Diphtheria (Td) toxoid should be given to anyone who will be entering the disaster area if they have not received a booster within the last 5 years. Wounds received in flood waters are not in fact tetanus prone, so individuals who are certain they have had a booster within the last 10 years may safely choose to decline another booster. Single antigen tetanus should NOT be used unless Td is not available.

Hepatitis A - A single dose of Hepatitis A vaccine should be given to anyone (1) who is living or working in a shelter, (2) who is providing medical or personal care to survivors, (3) who is working in a jail, prison, detention center, or other law enforcement capacity, (4) who is working with the mentally handicapped, (5) who is functioning as a first responder, (6) who is working with bodies or in a mortuary, (7) or who is working preparing or handling food in a shelter. This creates protective antibody in about 2 weeks. A booster dose should be offered after 6 months to all those immunized to assure long-term immunity. Hepatitis A immunization is not indicated for those engaged in clean-up or those exposed to flood waters. There is no increased risk of Hepatitis A in sewer workers or those working in flood waters. If an individual has had a single dose of Hepatitis A vaccine more than 6 months ago, give the booster. If the individual has had the 2 dose series, no booster is required.

Hepatitis B - Three doses of Hepatitis B vaccine are required to protect those at risk for exposure. This includes anyone (1) who is providing medical care to anyone, (2) who is caring for the mentally or physically handicapped in a residential setting, (3) who is working in a refugee shelter and might be exposed to blood or body fluids, (4) who is functioning as a first responder, (5) who is working in law enforcement, (6) or who is...