Basics of Health Promotion and Education Intervention

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Lecture - 01
Brief History of Public Health

We are here today to discuss the basics of health promotion and education interventions. This is a very essential part of public health. And for those of you who are interested in public health, taking it up as your academic pursuance or as your profession later on, it is very important to understand these issues.

To understand public health, we would, of course, have to go through a brief history to see how it has evolved into the present status.

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So, the concepts which we will cover over the next few minutes, are the history of evolution and adaptation of humankind, which is basically the history of public health. Health and disease in the ancient world as it were. History of pandemics and now we are living in an age of pandemics. Documentation and statistical analysis for social and public health reforms, which forms a very important area of public health, and some landmark inventions and discoveries like microscopy, vaccination, etc.

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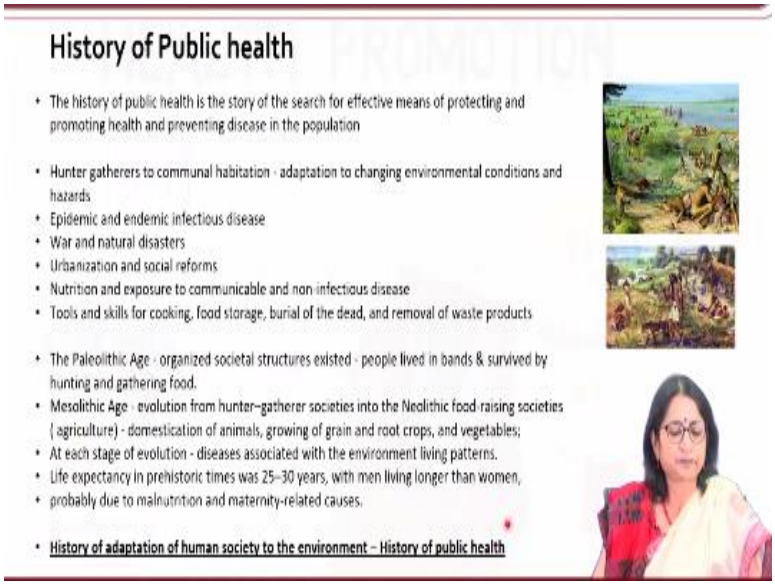

Let us start the history of public health then. The history of public health is basically the story of the search for effective means of protecting and promoting health and preventing disease. And that is what is public health, protecting and promoting health and preventing disease. So, we all know that human beings have evolved from being hunter gatherers, gradually to communal habitations.

They lived, started living in groups, they started adapting to changing environmental conditions and hazards. They went through epidemics; they went through endemic infectious diseases. They went through wars and natural disasters. And along with all these changes, came urbanizations, came social reforms.

And we have also increasingly understood the importance of nutrition, the history of exposure of mankind, to communicable and non-infectious diseases. And humankind has also evolved in its tools and skills for cooking, food storage, burial of the dead, and removal of waste products. Some of these are, these are just some examples of what we have achieved and what has made an impact on public health.

So, we have gone through the Paleolithic age. Those of you who are familiar with the term know that this is, as far as we can see, go back, where there was organized societal structure. People started living in bands, and they survived as hunter gatherers. They hunted and gathered food. Then came the Mesolithic age, where there was evolution from hunter gatherer societies to the Neolithic age.

Food raising societies or the agricultural societies, with domestication of animals growing of grains, roots, etc., vegetables. So, each of these had its impact on the health of humankind. At each stage, there were different diseases associated with changing living patterns. And, just as an example, we can say that we can see that life spans, life expectancies have also been changing. In prehistoric times, it was only 25 to 30 years, very young in terms of what we say the present-day life expectancies.

Men lived longer always than women then. Probably due to malnutrition and maternity related causes women died earlier. So basically, what we would like you to know is that history of adaptation of human society to the environment, is the history of public health.

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Now health and disease in the ancient world, whatever we know shows that many of the main traditions of preventing and treating diseases were based on magic or religion. We did not understand it. So, we attributed it to some magical powers or something beyond our comprehension, some supernatural human being. And but what is important is that even way back, we found cultural sanctions of water sanitation and hygiene.

Cleanliness was always equated with godliness. And hygiene was associated very strongly with religious beliefs and practices. Chinese, Egyptian, Hebrew, Indian and Incan societies they all provided sanitary amenities as part of their religious beliefs

and provided water, sewerage and drainage systems. So that forms the basis of our civilizations. These measures were all essential for successful urban settlements.

Like the Chinese practices of digging wells for drinking water, destruction of rats and rabid animals, using sewers and latrines, there is evidence of that. The concept of health was that of counterforces between yin and yang. This most of us know about Chinese beliefs with an emphasis on the concept of health on a balanced lifestyle.

There was emphasis on diet, emphasis on herbal medicines, emphasis on massages, of different types, acupuncture which is still there now. Ancient cities in India also are planned according to building codes, street paving, covered sewer. So, you see sanitation was quiet an in-thing even then. Ancient Indian way of medical practice Ayurveda which is again gaining a lot of popularity.

Personal hygiene, sanitation and water supply engineering were emphasized even in the laws of Manu. Among the most valued pieces of Indian writings are those created by Sushruta, a surgeon and Charaka a physician. Both of them were prominent teachers who ran very prestigious schools of medicine. And according to some historians, actually, their teachings were passed on to the Romans and Greeks.

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So, with the advent of writing, but all that was what we what was anecdotal, what was passed on across generations. With the advent of writing, we had documentation, we had evidence. Requirements of medical conduct was spelled out as part of the general

legal code. There is a lot of issues about medical conduct, which is raised right now. But it was there right from 1700 BC.

Ancient Egyptian texts, you know, what they wrote on was Papyrus, and we have some very, these are just examples of two very important relevant Papyrus is the Kahoun Papyrus, which is the most ancient scroll. It includes three parts. Then itself, we had human medicine, veterinary science and mathematics. And they said, intensive agriculture and irrigation practices were associated with widespread parasitic disease.

The cities had stone masonry gutters for drainage. Personal hygiene was highly emphasized. There was another Papyrus found the Ebers Papyrus, which has an extensive description of Egyptian medical science, including the isolation that is an important public health concept again, isolation of infected surgical patients. So, the first section of the Ebers papyrus deals with divine origin and strength of magic.

But the latter portion has a lot on the treatment of medical conditions, digestive diseases, eye diseases, skin problems, fractures, painful limbs, etc. So that was anatomy and physiology. And the last portion was focused on surgery. Even the Hebrew mosaic laws, The Five Books of Moses, they had a lot of emphasis on prevention, through regulation of personal and community hygiene.

And again, something which is very importantly focused nowadays, reproductive and maternal health. So, unclean condition was also very much focused on. But that was based on religious practice. This laid a basis for medical and public health jurisprudence as well, you know, laws, acts, regulations, etc.

Personnel and community responsibility for health which is again being emphasized and very important part of health promotion, that included mandatory days of rest, limits on slavery and guarantees of the rights of slaves and workers, protection of water supplies, all these were mandated, sanitation of communities and camps, waste disposal, and food production.

So, food regulation prevented use of diseased or unclean animals and prescribed methods of slaughter were there which improved the possibility of preservation of meat. So, this Mosaic Law, which was across many religions, like Judaism, Christianity, Islam, they codified health behaviors for individuals and society at large.

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Ancient Greece also placed high emphasis on healthful living habits, personal hygiene, nutrition, physical fitness, community sanitation, etc. So, we all have heard about Hippocrates. He articulated the relationships between disease patterns and natural environment like air, water etc. And this dominated epidemiological thinking till the 19th century.

So, there are some more examples of how in Cretan and Minoan societies climate and environment were recognized as playing a role in disease causation. We all know malaria, the very name meant that it was bad air and it was related to swampy and lowland areas, and prevention included planning the location of the settlements.

So basically historically, preservation of health was seen as a balance of forces, exercise and rest, nutrition and exercise, recognizing the importance of age and sex variables gradually, and diseases were seen as having natural causations. Cities and states started providing free medical services for the poor and slaves. City officials were appointed to look after public drains and water supply etc.

This was especially seen in the Roman settlements, where they were extremely skilled in engineering the water supplies, sewerage and drainage systems. So, Rome, in fact had access to clean water via 10 aqueducts supplying ample water, and they had calculated that each person would be needing 600 to 900 liters per person per day of household water.

So, these aqueducts brought that amount of water from the mountains for household use. Marsh lands were drained to reduce endemic malaria. Public baths were built to serve the poor, and fountains were built in private homes for the wealthy. We have all seen this in the various films, novels, stories that we have read. Streets were paved, and organized garbage disposal served the cities.

So along with that, the seeds of occupational health also were sown. There were measures to reduce known risks like lead exposure, particularly in mining. Galen who was Rome's leading physician, he perpetuated the fame of Hippocrates through his writings. He based medical assessment on four humors, sanguine, phlegmatic, choleric, and melancholic basically the mind, the gut problems, the lung problems, etc.

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Gradually what happened was the Jewish philosophers like Moses, Maimonides, he worked on communicable disease isolation and sanitation. He brought out several of his findings. And then monastery hospitals were set up to provide care to the sick and

dying, gradually supplemented by other institutions, municipal hospitals, voluntary hospitals, guild, hospitals, etc.

By 15th century Britain had 750 hospitals. Then we had the incoming of medical care insurance. Along with that, what happened was wars were raged. So, the crusaders from Europe came across to Middle East, and the crusaders and Muslims interacted through war, conquest, cohabitation and trade. So, the diseases, the culture all were intermixed. Leprosy then became a widespread disease in Europe, particularly among the poor, severely accentuated during and following the crusades.

So,, they were leprosaria or the sanitarium setup in Europe. In France, there were 2000 leprosaria in the 14th century. In Western Europe, it is at this time, you know, population started increasing. In the cities there were crowded, unsanitary conditions. These rapidly growing towns, medieval towns lacked systems of sewers or water pipes. Garbage and human waste were thrown out into the streets.

Houses were made of wood, mud and dung. Rat, lice and fleas flourished. So crowding, poor nutrition and sanitation, lack of adequate water sources and drainage, unpaved streets, keeping of animals and lack of organized waste disposal led to widespread infectious diseases. So gradually municipalities developed protected water sites, public fountains with regulation and supervision.

Piped community water supplies were developed first in Dublin, Basel and Bruges. In Russia, they started using clay and wooden pipes for water supplies, and municipal bath houses were also available. So what happened was, despite all this, the conditions were ripe for vast epidemics of smallpox, cholera, measles and other epidemic diseases which gradually started flaring up.

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And then came the huge pandemics. We have all heard about the Black Death, plague, pneumonic and bubonic plague. So, the rats brought them from the steps of Central Asia to Europe, China, Russia. The Mongols actually, the lots of Mongol invasions happened and they carried these by extensive trade routes by sea and over land. So, plague traveled with the armies and caravans and later by ship as the World Trade expanded.

So, despite local efforts to prevent disease by quarantine and isolation of the sick, this disease devastated whole communities. It was much worse than what we can ever think of right now. So, there is a bit of a quote which is put up here. I will not read the entire part or you can always refer to it.

But that these rumors, just like rumors of COVID do now, rumors gave rise to a lot of stigma, discrimination, wrong practices, misconceptions, misinformation etc. But still, the Black Death spread.

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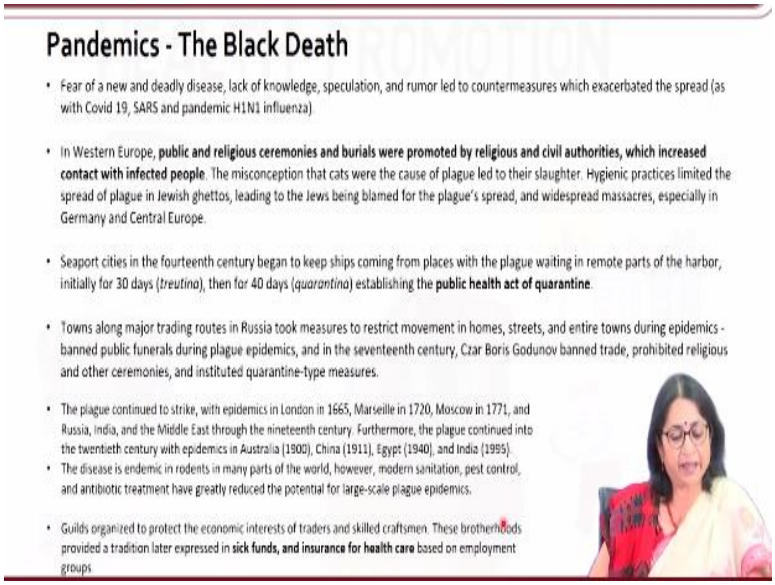

So fear of a new and deadly disease, lack of knowledge, speculation and rumor led to countermeasures, which exacerbated the spread, as with COVID-19, SARS and pandemic H1N1 which we have seen in recent years. In Western Europe, public and religious ceremonies and barriers were promoted by religious and civil authorities, which increased contact with infected people.

So that was what we were seeing in the beginning here as well. Sometimes there was misconception that cats were the cause of plague and people started killing cats all over the country. So these things kept happening. Even when plague was happening in Jewish ghettos, people said that these Jews are responsible for plague. So they killed Jews.

Seaports cities in the 14th century kept, they were the first to introduce this idea that these ships have to be kept at bay. So what we do, quarantine, now which is very commonly followed, was first introduced then. First 30 days, which was known as treutina, and then for 40 days, which was known as quarantina. So all these towns along the trade routes took measures to restrict movements in the homes in the streets and entire towns during the epidemics, banned public funerals during plague.

So now they started to take more practical and feasible methods. So, in their institute, they had institutional quarantine measures. Plague continued to strike with epidemics in London, Marseille, Moscow, Russia, India and Middle East throughout the 19th

century. However, so we still had, even as late as 1995, we had outbreaks of plague. The disease still remains as endemic.

However, modern sanitation, pest control, antibiotic treatments have reduced the magnitude and the potential for large plague epidemics. So what was good was that out of this, we have learnt a lot. And what happened was the guilds actually started first to protect the economic interest of these traders and craftsmen. What we saw was the first care or the thought that of setting up sick funds and insurance for health care started with as an aftermath of this losses due to plague.

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Then came Renaissance, which was a wonderful period, but it had a lot of travel, lot of trade. So there were vast epidemics of syphilis, typhus, smallpox, measles, continued to spread all over. Along with that with the trade we also understood rickets were happening, scarlet fever, scurvy, particularly among sailors, pollution and crowding in industrial areas. So, all this kept happening.

And what came out of it was that in the British areas they had poor laws, they set up poor laws, which was the local parish government became responsible for health and social wellbeing of the poor. What we are thinking of now of this universal health coverage or health as a right of the population was first conceptualized.

And each citizen was held responsible for cleaning this part of his street, but still the hygienic standards were quite low. And at that time, we had the contagion theory of

disease, which means disease is spread by some agent, a contagious agent. Before it was only the natural forces, air, water etc. So we had the terms infection, disinfection, etc., introduced.

In fact, in Russia in the mid-17th century they set up the state pharmacy department, which looked into these issues of quarantine, forensic medicine, etc.

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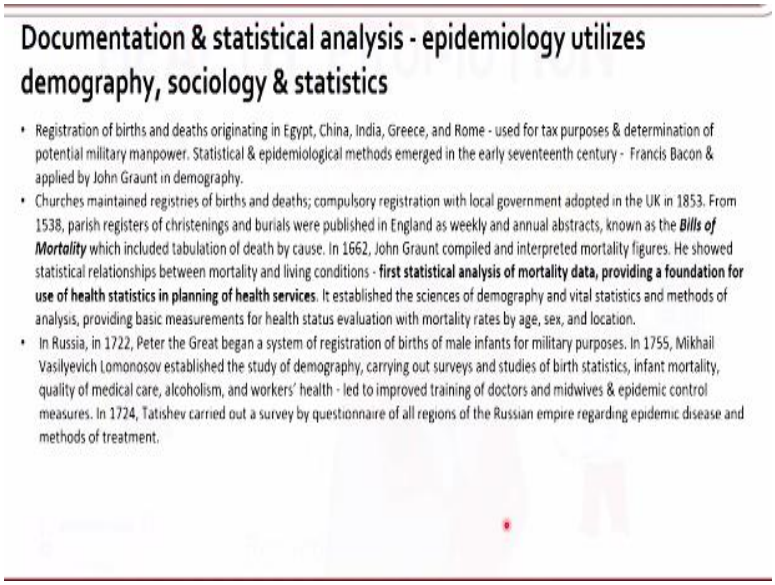

Then came documentation and statistical analysis, another very important landmark. Registration of births and deaths. This is actually a revolution, brought in a revolution in the thinking of public health. It originated in Egypt, China, India, Greece and Rome. It was used basically first for tax purposes. They wanted to know how many people we can tax or how many people we can recruit in the army.

So the potential military manpower. But gradually from that, there were two people Francis Bacon and John Graunt who applied it and showed us how we can use it for health purposes as well. So the churches were the ones who maintained registries of births and deaths. But gradually what happened, bills of mortality would be published by the churches in England as weekly or annual publications.

The first statistical analysis of this data was done by John Graunt. He was, he is considered as the father of health statistics. He was the one who analyzed it in terms of age, sex, location, etc. In Russia in fact, Peter the Great, he said, I would also require something like this. In 1755, another person Lomonosov, he established the

study of demography, carried out surveys, studies of birth statistics, infant mortality, etc.

These were all very new and very path breaking at that time. So all this was used for epidemic control. In fact, in the known documents in 1724, it was the Russian scientist Tatishev who carried out a survey by questionnaire of all regions of the Russian empire regarding epidemic diseases, which is also the first that we know of.

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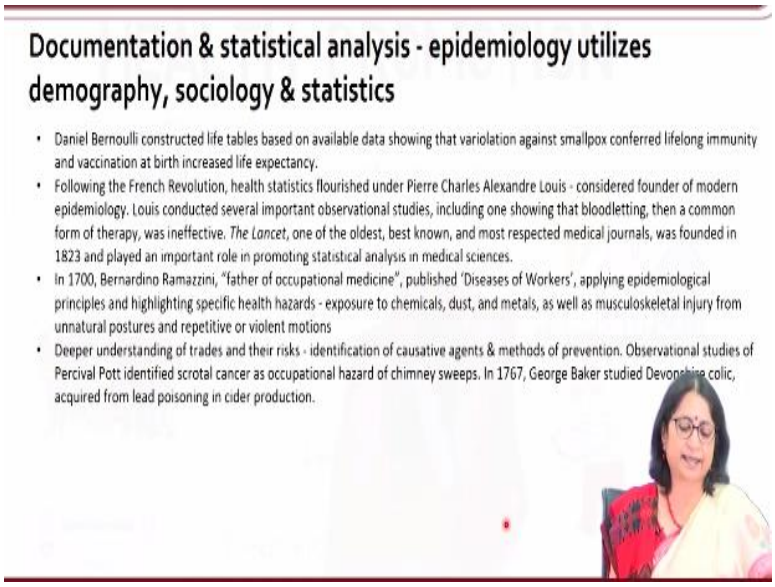

Bernoulli, an Italian scientist, he was the first one who constructed life tables. He loved mathematics; you know. So he used to work with these numbers. And he showed that variolation against smallpox, what they used to do then, it is not vaccination but variolation, conferred lifelong immunity. So he was the one who worked on this and found that it increased life expectancy.

Then of course we had Alexandre Louis, who was considered founder of modern epidemiology. He was the one who did a lot of observational studies, linking one thing to the other. And we had the Lancet being originating at that time. So Lancet was the best known most respected medical journal founded in 1823. They used to publish this statistical analysis, and it is an important landmark.

Along with that we have already talked about occupational health, but Ramazzini, he is considered the father of occupational medicine again, he did another observational study. He found out the different types of diseases which are occurring amongst

different workers. And he published the disease of workers laying the foundation of specific health hazards or what exposures can bring about in human beings.

Exposures to chemicals, dusts, metals, musculoskeletal disorders, etc. And this was followed up by Percival Pott, many of you might have gone through this study of Pott's scrotal cancer study. He identified it as an occupational hazard of chimney sweeps. And then again, the Devonshire colic, which George Baker studied to study cider production and lead poisoning.

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So health statistics has been very vital for social and public health reform, for planning, for prevention, for protection, and for planning the system as well. So it was Edwin Chadwick who worked in this and led to a lot of laws in the Registrar General's Office of Britain, what sort of data should be collected? William Farr has an interesting anecdote. But of course, which you can always look up.

William Farr was an interesting person, and he always used to love looking at these numbers. And he was the one who focused the work on public health, focused these data, and related it to public health. He analyzed mortality in Liverpool and showed that barely half of its native born live up to their sixth birthday, whereas in England, the overall median age was 45 years.

So all these are observations, but they were keen observers. As a result, you know, many apps came out many regulations came out. And then you came, there was again,

some other people who work, this was in America, they started the statewide registration of vital statistics, another very important landmark in the evolution of Public Health Administration and planning, because more you have numbers, better planning you can make.

Similarly, it was Florence Nightingale also who highlighted the value of hospital discharge information. Before that, people would just be discharged without any information on their or any data. She promoted the collection and use of statistics, which could be derived from these records.

And so Chadwick, Shattuck, and Florence Nightingale are said to be the path breakers in the initiation of hospital or healthcare delivery system planning based on statistical data.

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So, this was another aspect. Nutrition at the same time was being better understood. Scurvy, you know, like the Black Death of plague was there. So scurvy was there amongst the sailors who took long voyages and that was found gradually by observations and in Vasco de Gama's crew he lost 55 crewmen to scurvy in a single journey. So, there were lots of people and lots of journeys undertaken over the sea at that time.

But James Lind carried out his pioneering investigation, which led to the adoption of lemon or lime juice as a routine nutritional supplement for British sailors. And not

only he did this, but his technique laid the foundation for hypothesis formulation, study design, careful observations and testing, followed by documentation and publication, which is what you are all doing now.

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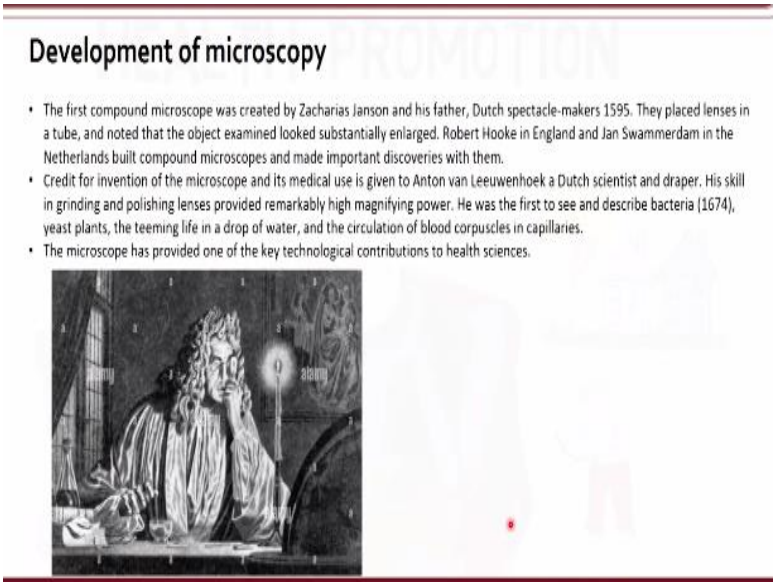

Then we had the development of microscopy. These are some very innovative things as you can see. Spectacle makers started making the microscope which was refined later on by another person who was a draper, a scientist later. But then he was he is now considered the father of microbiology.

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Then came vaccination, many of you might have heard about it, how it was smallpox, which ravaged the country. And then finally, we had these different experimentations. And in England, in Russia, people tried very different things. But Edward Jenner was

the first one to cowpox vaccination. It later became compulsory. And now you know, it is a very well-known thing and the most widely practiced implementation intervention, now in public health.

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So, what we would like to say and emphasize for all of you who would study public health is that history is collective memory. It is the storehouse of experience, which not only helps us understand the past, but only after understanding the past you can plan for the future. It provides useful insights into the social and political content in which people lived, and how they influenced public health practice.

So people cannot live in isolation. It is the surrounding environment, the socio-political environment, which influences their health and wellbeing. It provides knowledge of how public health practices have evolved, their successes, failures, highs and lows so that we can use them for our interventions later. It also highlights how innovative approaches have been introduced, and have made great progress in improving population health status.

So, it is interesting to look back at chronologies of public health history and understand the factors behind these significant developments to learn about these influences, which are as important and which we have to consider in the timescale of change, which we may be facing in delivering health improvements in future and public health is all about improving health.

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I have enlisted a set of references for you, which you can readily refer to if you want to know more about it. And I do hope that all of you would like to appreciate and look back into history to move forward into the future. Thank you.