SOLUTION TO COVID 19 BY BIOMEDICAL ENGINEERS

By Harsh Agrawal, 21111021

1 INTRODUCTION:

The Coronavirus OR Covid-19 Pandemic faced by world is the most severe pandemic in the recent times. All parts of the world have faced this problem and have tackled to their best. The Covid-19 Disease is a respiratory disease, which mainly affects the respiration of the body. Along with respiration problems, it causes severe or mild fever, cold ,cough and other symptoms. Many medicines and treatment have been developed to treat patients with Covid-19, and doctors have gave their best to prevent this.
The vital role of biomedical engineers in developing medicines, machines and devices require to treat Covid-19, and that too at a large scale is highly appreciated.
Some of the solution to Covid-19 which involved a wide role of Biomedical Engineers are as follows:

2 Oxygen Requirements-

The biggest problem during Covid-19 was the requirement of Oxygen by Patients, as respiratory disease causes the requirement of oxygen at a large level. The innovation of Oxygen Concentrators is the contribution of Biomedical Engineers all over the world and Oxygen concentrators were required in a large number due to more severe cases. Oxygen concentrators extract oxygen from the air on demand and supply it directly to the patient. Concentrators come in a variety of sizes from a portable shoulder bag form factor, to higher capacity stationary machines for patients who need oxygen 24/7. And all these devices developed by Biomedical Engineers.

3 Ventilators-

During Covid-19 Crisis, the most important devices is the Ventilator. Patients who cannot breathe spontaneously need to be put on a ventilator. Ventilators are capable of replacing the breath function and patients in an advanced state of respiratory distress are usually intubated and sedated at the beginning of the

treatment. Ventilators are capable of replacing the breath function and patients in an advanced state of respiratory distress are usually intubated and sedated at the beginning of the treatment. They are complex systems providing the healthcare professionals with a lot of flexibility to adapt the assisted breathing settings and to be able to wean recovering patients off the ventilator gradually.

4 Medications-

The variety of medications which came to use in treating Covid-19 was being developed by Biomedical Engineers along with Pharmaceutical sector.

5 PPE KITS AND MASKS

The innovation of PPE kits used during Covid-19 is done by the Biomedical Engineers. Further development is also being made in this field such as to develop better kits for health care workers to suit the environment and is comfortable to wear for longer time. Masks such as N-95 is also developed in this period in a large scale in all parts of the world by engineers and workers.

6 Hospital Management-

Management of hospitals during Covid-19 was the most difficult task of the time. Biomedical engineers developed several portals and software for the Hospitals.

7 Diagnosis-

The diagnosis kits used to detect Covid-19 Virus, is developed by biomedical engineers. Also Many developed CT scans which came to be used to detect Chest Infections and their treatments are developed.

8 Bio-Waste Management-

The crisis of Covid-19 lead to generation of a large amount of Bio-waste from hospitals and other treatment areas. The proper disposal of Bio-wastes in a proper way was managed by several Biomedical engineers specialised in this field.

9 Sterilisation and Autoclave-

All the equipment and tools used in the hospitals needs to be sterilised before using again. The Autoclave machines was required in a large number by hospitals due to increasing number of patients.

10 Developing Vaccine-

The most important role of Biomedical and Biotechnology Engineers is developing the vaccine for this disease. The BME engineers, Biotech engineers and Pharmaceutical specialised in cells and viruses worked together to develop vaccines for Covid-19 used all over the world.