WRITEUP ON FIVE SOLUTIONS TO COVID 19 PROVIDED BY BIOMEDICAL ENGINEERS

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0.1 INTRODUCTION

When a pandemic like COVID-19 takes hold, biomedical engineers work around the clock to ensure the right systems, equipment and devices are in place. Their expertise becomes a vital link in coordinating supply chains of life-saving medical technology.This pandemic has helped to highlight some of the unseen professions that help to make our health service work, and show the positive impact that Biomedical Engineering in particular can have on people's lives.

0.2 SOLUTIONS PROVIDED

- VENILATORS: 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.

- PERSONAL PROTECTION EQUIPMENT KIT:PPE The COVID-19 pandemic has evidenced the fragility of society and the need for effective and practical ways to protect it. For the general public, the use of face masks as personal protection equipment (PPE) remain the most practical line of defence against SARS-CoV-2 as well as other respiratory viral infections.
  However, for the wide range of multidisciplinary health care workers more protection is required, as surgical or respirator masks, and these are not intended to be worn for so long as is required in an NHS shift. There is an environmental cost to these disposable items, they do not fit all face shapes, the mask-face seal can be broken while talking, and they apply pressure to the sensitive face skin which can cause discomfort and tissue injury.

  From the patients and carers perspectives, they also obscure the face, which disadvantages people with hearing impairments who rely on lip reading - as well as a human face being reassuring.

  Therefore, there was a great need to develop new practical PPE technologies that can protect the population while ensuring a functioning

society.

- PULSE OXYMETER:A pulse oximeter is a device that checks how much oxygen our blood is carrying.As the time of covid 19 saw the breathlessness as the major symptom oximeter has been saviour of he time.This device has became part of our daily routine.

- FINDING DRUGS: Pharmaceutical engineers research, discover, synthesize, develop, and manufacture drugs and medications. It is one of the oldest biomedical engineering fields, dating back to the 19th century and the creation of arsphenamine (Salvarsan), the first mass-produced synthetic medicine.

  Pharmaceutical engineers contribute to pandemic treatment and prevention efforts by designing and producing drugs capable of treating diseases or alleviating their symptoms. They also oversee the manufacturing process, addressing mass production and engineering entrepreneurship challenges, ensuring the drugs' safety and legal compliance.

- CONNECTING PATIENTS AND DOCTORS: Telehealth (or telemedicine) allowed professionals to use information and communication technologies to provide remote healthcare. Telehealth engineers develop Internet-connected machines and devices and train healthcare workers in their use, allowing them to provide remote consultations and healthcare, from simple diagnoses to robot-assisted surgeries.

  Telehealth engineering solutions are vital during a pandemic. They protect both healthcare workers and patients (remote healthcare respects social distancing). They also provide a way for vulnerable or isolated patients to seek diagnosis and treatment without endangering themselves or others.

0.3 CONCLUSION

If the healthcare worker could be compared to a frontline soldier in the fight against the COVID-19 pandemic, then the biomedical engineer

provides support and oversees the supply chain. They design, source, develop, deliver, and maintain the tools that doctors, nurses, surgeons, and other health professionals use daily. Depending on where they work, the expertise of biomedical engineers is needed in a wide array of sectors, creating various devices, drugs, and equipment to fight the spread of the virus.