

We Continue to Battle with Diseases that are Difficult to Diagnose and Cure in the 21st Century

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ABSTRACT

I imagine the future is a place without deadly diseases, but since the Covid-19 pandemic affected more than 695 million people worldwide by September 2023 [1], my perspective has changed. Despite the fact that there is a wealth of scientific knowledge available documenting hundreds of scientific studies, this disease is now endemic [2], requiring the use of computer systems to organize and understand all the research going on there.

But what about conditions that only affect a few people? Take the case of a young woman who acquired influenza A when 33 weeks pregnant with triplets, killing both the mother and all three of the babies [3]. Pregnancy raises the risk of contracting a serious illness; hence, vaccination is strongly encouraged. However, it is still unclear how oseltamivir should be used to treat influenza, highlighting the need for high-quality evidence to help critically ill patients make decisions [3].

More recently, an alarm was raised in one of India's regions, leading the nation to close schools and forbid public gatherings in order to stop the spread of the Nipah virus, which has a high rate of mortality of up to 75% and still has no known cure [4]. The symptoms of Nipah virus infections occur four to fourteen days after exposure to the virus, which adds another layer of difficulty to living in a globalized culture.

Even worse, some diseases—like polio, a highly contagious illness that attacks the nervous system—have not yet been eliminated. Although the last recorded case of wild polio occurred in 1991 in America [5], the disease is still endemic in Pakistan, Afghanistan and Egypt [6]. Currently, two of the three wild poliovirus types have been eradicated, with efforts focused on controlling them and eliminating the remaining types. Unlike previous cases, the general scenario is complicated by the lack of vaccination campaigns, the absence of epidemiological surveillance in poor regions of the world, the confinement of people, and other problems caused by natural disasters [5,6].

Not to mention that there is no known treatment for conditions like Alzheimer's and Parkinson's disease, multiple sclerosis, lung and colorectal

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cancer, asthma, and Crohn's disease, among others.

In addition, there is a lack of data on the registration of people with certain diseases. Take the case of neurological diseases (such as Alzheimer's and Parkinson's), and there are few initiatives that can help those who suffer from them. Therefore, it is necessary to create more cooperation networks, such as the American NeuroNEXT project, which focuses on clinical studies of patients with these disorders [7], and disseminate its results to the entire world.

There are other diseases that need to be epidemiologically monitored to prevent another pandemic, like the Marburg viral disease (MVD), which has an average fatality rate that varies depending on the virus strain, is only one of many additional examples that, in one way or another, could lead to another pandemic [8]. Since its symptoms are frequently misdiagnosed and mistakenly linked to typhoid fever, malaria, meningitis, and other illnesses, this virus was first discovered in 1967 in Marburg, Frankfurt, and Serbia. To this day, it is still challenging to diagnose, necessitating the use of an enzyme-linked immunosorbent test (ELISA) [8].

Although dosage and drug research have improved over time, they are still insufficient for many conditions. Asthma patients are one such example. Remember that Asthma is a common and incurable disease that may be managed with the right care and effective medication. Due to improvements in drug discovery, administration, and attention, modern therapy has dramatically improved over the previous 20–30 years. The synthesis of endogenous hormones, such as adrenalin and cortisol, has dominated the trend [9], but the asthma is still incurable.

With these facts in mind, when looking at the painting titled *The Doctor*, an oil painting by the British artist Sir Luke Fildes (1843–1927), it reminds me of the powerlessness to fight against many of the diseases that torment us (figure 1). The image reflects the great concern of a person, a doctor trying to treat a young girl who is about to live on a makeshift bed with two chairs. This painting, in which Fildes recalls the doctor's care of his eldest son, who died of tuberculosis in 1877, forces us to reflect on the duty and urgency of deciphering and curing the disease.



Figure 1. The Doctor's painting obtained from Wikipedia.

In fact, I think that medicine frequently works alone; that is, several clinical studies, specialized training programs, research initiatives, and a lot of studies in the United States frequently focus solely on a single disease. However, the word multimorbidity was recently coined to describe when two or more medical conditions affect a person [10], and therefore, it requires multidisciplinary collaboration to make a precise diagnosis.

Furthermore, the term "complex multimorbidity" has been used recently and is based on the hypothesis that some forms of multimorbidity may be more difficult to treat than others [11]. The classic example is smokers, who are a great example due to their increased risk of peripheral vascular disease and lung cancer, and are just the beginning of other diseases.

Finally, I have witnessed continuous scientific advances in

recent years, such as large-scale genome sequencing, cellular immunotherapy, proton therapy, 3D printing, and more. This is why I believe that the day will come when the world will be disease-free.

You'll be wondering, why before 2100? I dare to say that I am based on a concrete example: It has taken little time in terms of human creativity to obtain computerized axial tomography equipment, the use of which for medical purposes began in 1972, since the first mathematical study was published in 1917 [12]. That is, less than seventy years ago, the possibility of a device with this medical potential for detecting and diagnosing diseases had not been conceived, so in a hundred years' time we will have technology that we have never imagined.

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CONFLICT OF INTEREST

Author declares that there is no conflict of interest.

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