[Dr Imran Syed](https://www.thenews.com.pk/writer/dr-imran-syed)

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**The Golden Age and medical science**

The debilitating effects of a pandemic that refuses to go away can make just remaining safe and healthy seem like accomplishment enough. The public policy aspiration in such times should be to navigate through the pressing challenges of the present and concurrently chart a course for a healthful and prosperous future.

As Covid-19 extends into 2021, vaccines and vaccinations are providing a glimmer of hope and optimism. Building on this optimism, now is a good time to reflect on specific areas where we need to place some of our future public resources, in view of the lessons that have been learnt in dealing with the Covid-19 pandemic.

One immensely important area of development is strengthening our technical and scientific expertise in handling pandemics. In terms of developing professional expertise, we need to realize that along with the focus on acquiring knowledge in digital technology and the physical sciences we also need to educate and train experts in epidemiology and in pandemic-relevant medical science.

To help us progress forward with the right measure of confidence, it may be useful to look back in history to gauge if Pakistan, and other predominantly Muslim developing countries, can hope to rise to play a more meaningful international role in epidemiology and the medical sciences. Here, it is heartening to see that there was a time in world history, during the Middle Ages, when Muslim scientists excelled in the fields of medicine, astronomy, mathematics, and physics, among others.

The Middle Ages are a period of history that span from the fifth to the fifteenth century. This period is also divided further into sub-categories by regions and sub-periods. The first half of the Middle Ages in Europe is sometimes classified as the Dark Ages. This classification reflects the widespread lack of interest in the sciences and philosophy that prevailed in Europe during that time. Interestingly, the period of the Dark Ages in Europe overlaps with a period that was classified as the Islamic Golden Age. This period, roughly from the eighth to the thirteenth century, saw a flourishing of culture, science and the economy in some predominantly Muslim areas of the world.

In this Golden Age, there were many Muslim scientists who contributed significantly to development and progress. These scientists included Ibn Sina, Ibn Tufail, Omar Khayyam, Ibn Al Haytham, Ibn Khaldun, and many others. An area of science where the Muslims of the Golden Age excelled was medicine. Also, traditionally, the physician or ‘Hakeem’ has been accorded importance in Islamic culture, and medicine during the Golden Age was closely allied with the other sciences, especially philosophy, and many noted physicians were polymaths.

One influential medieval Muslim scientist in the field of medicine was Al Razi (also known as Rhazes in Latin). Al Razi, whose full name was Abu Bakr Muhammed ibn Zakariya Al-Razi, was one of the renowned Muslim physicians of the Golden Age. He was born in Ray and is reported to have lived from 854 to 930 AD. Al Razi held an influential position as head of the hospital in Baghdad and is known to have written over 200 works; almost half of which were on medicine, and the others were works on philosophy, mathematics and astronomy.

In the fifteenth century, Europe started improving its cultural, economic and scientific conditions and these changes then led to the Enlightenment. It would seem plausible to reason that the Muslim, given their level of progress compared to Europe, would in some way have contributed to the Enlightenment. This is not hard to imagine because such sorts of flows of ideas and innovations have been taking place between regions and civilizations throughout history. In fact, important sources of knowledge during the Islamic Golden Age were the works of Greek philosophers and scientists of classic Antiquity, such as Socrates, Plato, Aristotle, etc.

To see how Al Razi contributed to the development of medical sciences, we need to see how he developed on the work of Galen, who is regarded as one of the most accomplished physicians of Antiquity.

Claudius Galenus or Galen lived in the second century, in some accounts from 130 AD to 204 AD. He is considered the most accomplished of the physicians of the classical Antiquity period and served as the physician to the emperors of his time. In addition to medical science, Galen also contributed to philosophy and logic. One deficiency of Galen’s anatomical research was that it was primarily based on the dissection of animals. Nonetheless, Galen’s views, to varying extents, were influential in medical science for almost a thousand years.

The distinguishing characteristic of Al Razi was his emphasis on observational diagnosis and therapy rather than on the theory of illness. He also advocated empiricism and questioned the existing medical knowledge of his time and would not accept prevailing knowledge about medicines and cures without personally investigating it. The most important of Al Razi’s works is ‘The Comprehensive Book of Medicine’. The original Arabic version of this lengthy book consisted of twenty-four volumes. Al Razi’s work on smallpox and measles was translated in Western languages and was considered an important text in Western medicine.

Al Razi also wrote a book titled, ‘Doubts Concerning Galen’. He believed that medical knowledge should be open to criticism, as this critique would help medical knowledge improve with time. Due to his reputation and influence, Al Razi has sometimes been referred to as the Second Galen.

The contribution of Al Razi helped develop on the work of existing medical knowledge by emphasizing the importance of empirical observation and experimentation. The works of this physician significantly improved medical knowledge and eventually contributed towards establishing the scientific method of inquiry and knowledge gathering. This approach to knowledge contributed to the development of the West during the Renaissance and led to the Age of Enlightenment. Enlightenment, in the seventeenth and eighteenth century, propelled progress and development in Europe and one aspect of Enlightenment was the use of the scientific method and empirical knowledge.

For Pakistan to forge forward towards attaining excellence in epidemiology and the pandemic-relevant medical sciences, we need to cultivate the right mix of confidence and vision by remembering that at one juncture in history, Muslim scientists led the world in making contributions to medical science.

We also need to lay down public policies and provide resources to encourage Pakistanis to pursue and achieve excellence in epidemiology and pandemic-relevant medical sciences in the future.

The writer heads a university-based policy centre in Islamabad.