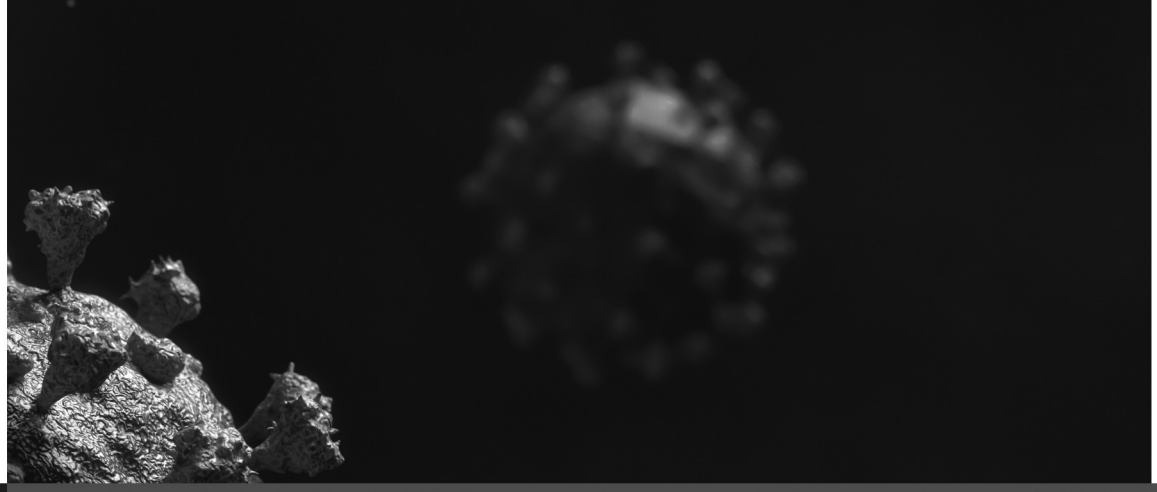

COVID-19:
ORIGIN, IMPACT AND MANAGEMENT
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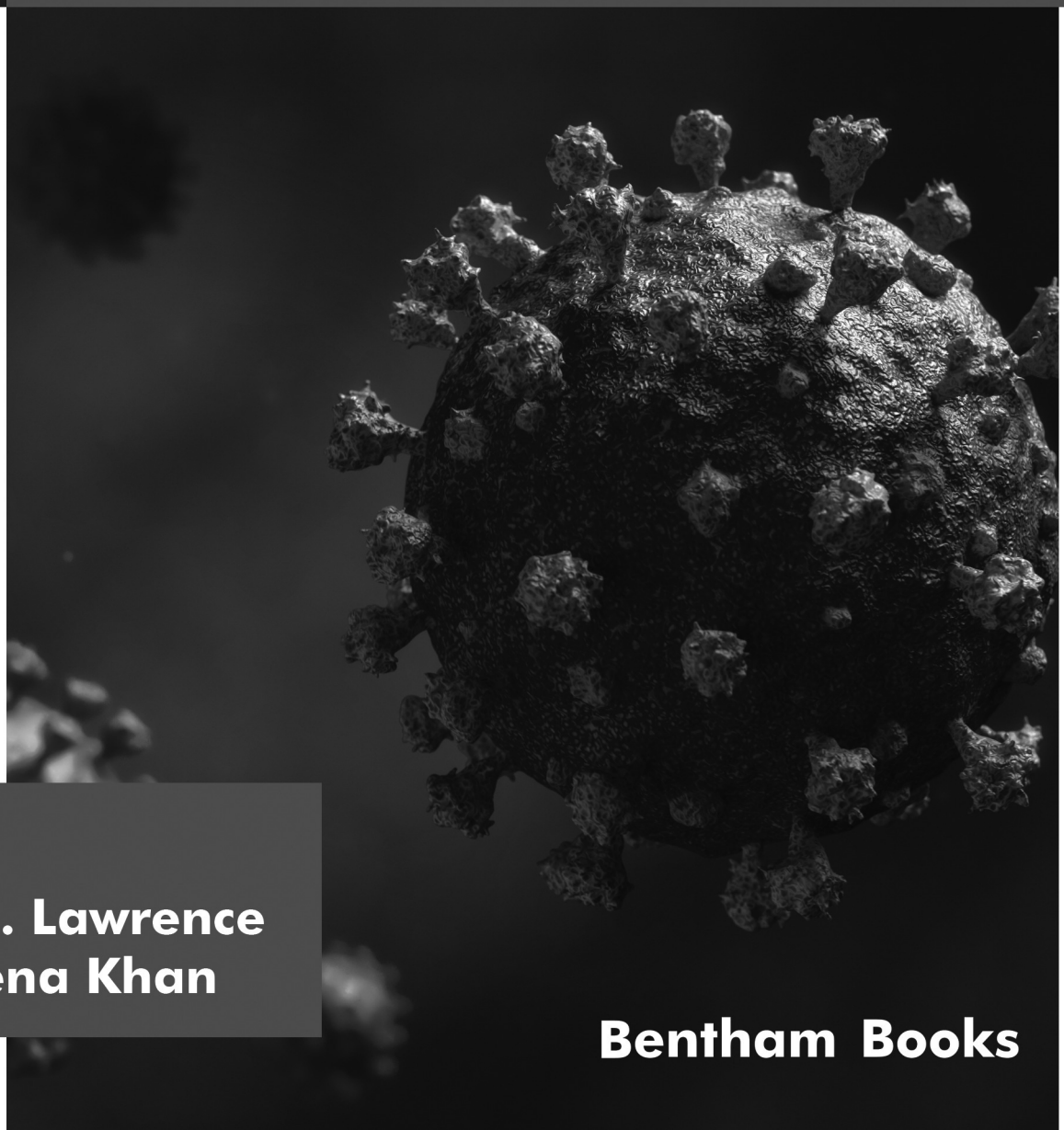

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COVID-19: Origin, Impact and Management

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CONTENTS

CHAPTER 1

The Outbreak of COVID-19 Coronavirus and Associated Facts and Factors

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Abstract: COVID-19 is a global pandemic resulting in devastating impacts that spread through a virus and are even more contagious than influenza, as evident from the frequent reporting of cluster outbreaks. Although the key problem is that the symptoms are often similar to other common illnesses, such outbreaks can be controlled if individuals with initial symptoms are tested, and further contact tracing is done. The concept presented here discusses the order in which symptoms appear to differentiate it from other respiratory disorders, however, this crucial information is mostly missing. To determine the most likely order of detectable symptoms in COVID-19 patients, we apply a Markov Process to a graded partially ordered set based on clinical observations of COVID-19 cases. A comparison was made between the evolution of these symptoms in COVID-19 and influenza, SARS, and MERS to see if they were present differently. Influenza, according to our hypothesis, begins with a cough, whereas COVID-19 and other coronavirus infections begin with a fever. COVID-19, on the other hand, varies from SARS and MERS in terms of the order of gastrointestinal symptoms. As facilities begin to reopen following the 2020 spring outbreak, our findings support the idea that fever should be used to screen for admission and that appropriate clinical practice should include noting the order of symptoms occurrence in COVID-19 along with other diseases. If this type of systemic clinical approach had been routine, the move from a local to a worldwide pandemic might not have happened.

Keywords: Clinical approach, COVID-19, Fever, Infections, Markov Process, MERS, Pandemic, SARS, Variants.

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Dr. Alfred J. Lawrence is working as Assistant Professor in the Department of Chemistry, Isabella Thoburn College, Lucknow. He is also serving as the coordinator of the Research & Networking Cell and the chairperson of the Internal Quality Assurance Cell (IQAC) of the college. He holds twelve years of teaching experience and twenty years of research experience in Air Pollution monitoring and Health Risk Assessment. He has done his Ph.D. from St. John's College, Agra and holds four years of Post-Doctoral research experience from Purdue University, USA. He has been a visiting scholar to the University of Manchester and Oxford University, UK. He has published more than thirty five research papers in reputed international journals and five book chapters. He has also edited two international books and two conference proceedings. He has completed two research projects and is currently working on a project funded by the Department of Higher Education, Govt. of Uttar Pradesh. He has received many fellowships and was awarded International Society of Indoor Air Quality (ISIAQ) Fellowship, ETH Fellowship and International Society for Environmental Epidemiology Fellowship, Department of Science & Technology Travel Grant, University Grant Commission Travel Grant to present Research work in Ghent University, Belgium; ETH University, Switzerland; ISEE - Italy, University of Scotland, England and AWMA, USA respectively to present his research work.

Tahmeena Khan

Dr. Tahmeena Khan is currently working as an assistant professor, in the Department of Chemistry, Integral University. She did M.Sc., and holds a specialization in inorganic chemistry. She did her M.Phil. in magnetic resonance spectroscopy and magnetic resonance imaging and worked on automated 3D structure determination of proteins for her dissertation. For her doctoral degree, she worked on mixed ligand-metal and mixed metal-ligand complexes of thiosemicarbazones and their therapeutic properties. She holds fifteen years of teaching experience and has published more than forty research papers and twenty book chapters. She also has two international books and two national books as editor and two books as author to her credit. Dr. Khan is also a life member of several academic bodies. She has keen interest in medicinal and environmental chemistry.