

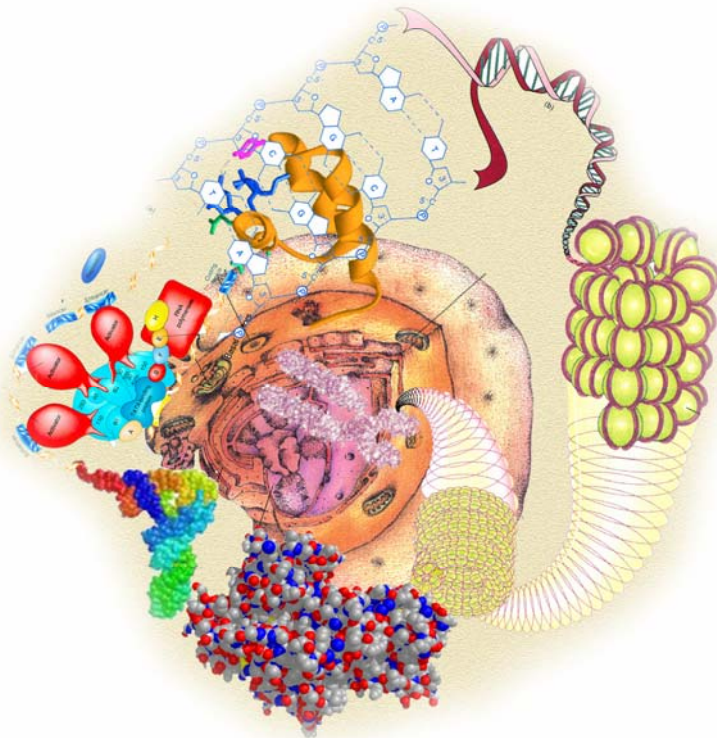


**IN THE NAME OF ALLAH,
MOST MERCIFUL, MOST GRACIOUS**



International Journal of Health Sciences

A Peer Reviewed Journal



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International Journal of Health Sciences (IJHS)

The mission of **The International Journal of Health Science I (IJHS)** is to promote excellence in the practice of medicine and in scientific research. IJHS publishes peer-reviewed scientific papers of significance in all areas of health sciences from basic research to clinical and experimental work.

IJHS purpose is to bridge diverse communities of medical and social scientists, working in different disciplines, from different parts of the world. It provides information and debate on subjects of interest to a broad international readership, written by an equally international range of authors. It serves as a forum for review, reflection and discussion informed by the results of relevant research.

The IJHS is a general medical journal that will consider any original contribution that advances or illuminates health sciences or practice. The Journal invites original research and review articles, important case reports and analysis, short research communications presenting novel research ideas and timely research finding, and reports of new drug development and clinical trials. We are most interested in papers that will influence practice and that address important advances in Health Sciences. *The IJHS* gives priority to reports of original research that are likely to change clinical practice or thinking about a disease.

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*Foreword I***IJHS: Towards Excellence in Health Sciences**

In these early years of the twenty-first century, scientific discovery and understanding are playing an important and growing role in meeting the challenges (human health, environmental, economic) facing societies everywhere. We have stepped into the Age of Molecular Medicine.

What breakthroughs could the advances in health sciences bring? For cancer patients, the excitement centers on a new generation of treatments designed not for massive conquest but for narrowly targeted strikes against tumor cells. As science reveals more about the chemistry of mental function, diseases ranging from addiction to Alzheimer's could become as manageable as high blood pressure.

That's just the beginning. The mapping of the human genome has set the stage for an era in which doctors use gene tests to determine which patients are most likely to benefit from a particular treatment or lifestyle regimen. And researchers are now working their way from the genome to the proteome - the vast array of biologically active protein molecules encoded by our DNA. By cataloging the 100,000 or so proteins that human genes produce, and pinpointing their functions, researchers will gain a surfeit of targets for drug molecules. Embryonic stem cells may some day help our ailing bodies produce whatever proteins they lack. The possibilities are endlessly seductive.

Health is easier to preserve than it is to repair. Wonder drugs aside, most of us can still achieve longer, better lives by exercising, eating well and managing our weight. Health sciences can light the path to optimal health. System-wide healthcare reform is required to provide opportunities to create a healthier population.

The promise of rapid advances in medicine "from the lab bench to the bedside" has not manifested as of yet. Great progress has been made; nevertheless understanding processes such as disease progression requires systematic insight into dynamic differences in gene regulation, interaction and function. Trends already developing in medicine will be strengthened by molecular manufacturing.

Modern medicine is advancing at a breathtaking pace in the developed economies, helping people live better, longer lives. This is a remarkable achievement in which progressive healthcare policies, pharmaceutical innovations, and healthier lifestyles have played leading roles. Yet this success brings with it profound challenges, responsibilities and some hard economic truths.

Many of today's applications can be made significantly more efficient. There is an urgent need to invest in Research and Development. Human happiness and longevity will much depend on initiatives to advance disease prevention and health promotion. Cost-effective interventions are required to address the issues of quality care and inequality in health status.

Academic institutions are transforming so is the Qassim University. Universities have an important role to prepare the academics, medical scientists, health professionals and researchers of tomorrow. The extraordinary advances of contemporary medical science and technology will be of scant benefit to society unless effective ways are developed for delivering this knowledge in the form of health care.

Health care research is concerned with the introduction of more science, not less, into medicine.

Our global mind, global aspirations and global pursuits will determine how well we stay the course and how far we go in our continuing quest for excellence.

We have what it takes to seize the opportunities and rise to the challenges ahead. We start this long journey with a small step. We will journey confidently towards achieving excellence in education and research. The International Journal of Health Sciences will play a key role in linking the research with practice.

Professor Khalid Al-Hamoudi
Rector
Qassim University

Foreword II

IJHS: Translating Knowledge into Action

We are pleased to launch the first issue of International Journal of Health Sciences. We hope scientific community will like it.

Medical science is entering a golden age. The secret to radically improved health care lies at the cellular level, ground zero for disease. The rapid pace of technological growth in the life sciences research enterprise reflects a revolutionary change in the way people interact with biological systems and a growing capacity to manipulate such systems. Such advancing technologies offer great promise for improving the quality of human life: promoting health, preventing disease, and ensuring adequate food and even the possibility of new energy sources.

The most significant areas of current and future research in life science include genomics, proteomics, image analysis, and bioinformatics. While genomics has present priority, proteomics represents the wave of the future.

Genetic analysis now can classify some conditions, like colon cancer and skin cancer, into finer categories. This is important since classifying diseases more precisely can suggest more appropriate treatments. The same approach will soon be possible for heart disease, schizophrenia, and many other medical conditions, as the genetic underpinnings for these diseases become more completely understood.

Genomics will hasten the advance of molecular biology into the practice of medicine. As the molecular foundations of diseases become clearer, we may be able to prevent them in many cases and in other cases, design accurate, individualized treatments for them. Genetic tests will routinely predict individual susceptibility to disease. Diagnoses of many conditions will be much more thorough and specific than now. New drugs, derived from a detailed molecular understanding of common illnesses like diabetes and high blood pressure, will target molecules logically.

What will drug development look 20 years from now as the landscape in drug development is rapidly evolving. Within this rapidly evolving environment, new technologies are being developed that will likely change the face of drug discovery and development.

Pharmacogenomics describes the idea of tailoring drugs for patients, whose individual response can be predicted by genetic fingerprinting. Better understanding of genetics promises a future of precise, customized medical treatments.

Diagnosing ailments more precisely will lead to more reliable predictions about the course of a disease. Decades from now, many potential diseases may be cured at the molecular level before they arise.

In the near future, nanotechnology in the broad sense will continue to develop dozens of interesting technologies and capabilities, leading to hundreds of improved capabilities and applications. What is of paramount importance is translating knowledge into action.

This first issue is a humble beginning and we will strive hard to improve its quality in the subsequent issues. We would appreciate the comments and suggestions from our readers to help us raising its standard to make it a world class quality health sciences journal.

**Professor Saleh A. Al-Damegh
Vice President (Graduate Studies & Research)
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Editorial

Building a Healthy World for Tomorrow

Throughout its four billion years of life, earth has witnessed changes in environment (natural resources), human activity, demographic and health transitions. Life expectancy over last 55 years improved more than during the entire previous span of human history primarily due to decline in mortality, income growth, improvements in medical technology (immunization, discovery of newer antibiotics, microsurgery, medical imaging), improvements in public health (clean water, sanitation), progressive healthcare policies, pharmaceutical innovation, healthier lifestyles and scientific knowledge.

For centuries, communicable diseases were the main causes of death around the world. Concurrently we are also facing triple burden of disease. We are living under three shadows - one of infectious diseases, the new and growing shadow of non-communicable chronic diseases and, injury primarily due to motor vehicle accidents. Heart diseases, cancer, diabetes, mental illnesses became a real burden for health systems.

By the dawn of the third millennium, non communicable diseases are sweeping the entire globe. By 2020 it is predicted that Lifestyle Diseases will be causing seven out of every ten deaths in developing countries.

More people smoke today than at any other time in human history. One person dies every ten seconds due to smoking-related diseases. Tobacco is the biggest killer, much bigger in dimension than all other forms of pollution. Worldwide, 1.3 billion people currently smoke cigarettes or other products. In 2020 the global burden is expected to exceed nine million deaths annually. Of everyone alive today, an estimated 500 million people will eventually be killed by tobacco.

Up to 80% of cases of coronary heart disease, and up to 90% of cases of Types 2 Diabetes, could potentially be avoided through changing lifestyle factors. About 75 percent of cancer cases are tied in some way to how we live our lives. One-third of cancers could be avoided by eating healthily, maintaining normal weight, and exercising throughout life. As lifestyles reflect both individual choice and the norms and values of community, promotion of health lifestyles should be directed to both the individuals and the community.

Each year 10.5 million child deaths are preventable in the sense that these children would not have died if they had been born in rich countries.

Twenty-first century is known as the century of knowledge. There is much hope that in the near future we will have more DNA vaccines, better drugs that draw on advances in genetic engineering, ingenious new ways of targeting and destroying pathogens inside the body, a range of new pharmaceuticals as well as new gene and cell therapies to repair damage, to optimize health and to minimize future disease risk.

Greater understanding of the human genome will direct the development of medicines to help treat and prevent diseases over the next hundred years. The human genome consists of approximately 3 billion nucleotides of DNA sequence, most of which have now been identified in their linear arrangement on chromosomes. The genome contains several million individual DNA-sequence variants (or alleles), defined as differences in sequence at identical sites on homologous chromosomes. Technological developments now permit high-throughput testing of the several hundred thousand individual sequence variants necessary to provide adequate coverage of all the DNA blocks in humans to ensure that if a variant associated with disease is present, it will be found. Coupling the genotypic data with epidemiologic data that include many covariates, one is theoretically able to identify genes or gene environment interactions that predispose to both normal trait variation and disease processes. The genome sequence continues to teach us about new forms of genetic variation; in the past few years, for example, copy-number variation has begun to be recognized as a contributor to human disease. Copy-number variants can change the gene dose and thus cause comparatively subtle changes at the level of gene expression; they may influence susceptibility to complex traits.

There are now many large-scale efforts to uncover genetic effects and gene-environment interactions relevant to disease. The downstream functions of such common genetic variants will be potential targets for lifestyle or medical interventions. There is a strong need for more epidemiologic studies so that these new approaches can be exploited.

Advances in genetics will allow treatments to target the genes or specific proteins that cause disease. Gene therapies are being developed that aim to replace faulty genes and so reverse the effects of inherited disorders such as cystic fibrosis. The use of stem cells for the treatment of myocardial disorders is gathering pace. Breakthroughs in DNA technology have helped developing highly sensitive and specific diagnostic tests. The use of superconducting quantum interface devices (squids) will make it possible to diagnose heart, brain, auditory and visual problems. A nano diagnostic molecular detection tool is being created by researchers to detect and analyze molecules in the blood and other fluids using nano and micro cantilevers (smaller than the surface of a fly's eye) a promise to revolutionize the diagnosis of diseases such as cancer and opens up new applications in sectors as diverse as environmental protection, chemical analysis and food safety. Development of vaccine will see breakthrough in diseases like cancer and AIDS.

Hopefully we will sometimes report new victories over disease.

Turning point in history can be identified with certainty only with the benefit of hindsight. The signs are, nevertheless, that the International Journal of Health Sciences (IJHS), a Qassim University Scientific Publication, launches at a key moment in the history of mankind's struggle against diseases (lifestyle, infectious, injury, etc.) affecting millions of people globally. The aim of IJHS is to publish scholarly articles, interesting and informative reviews on any topic connected with health (medical, dental and pharmacy) sciences.

Health is more than a medical issue. There is a great opportunity to capture the shining heights of partnership to build a healthy world for tomorrow. Let us rise to the responsibilities of the new world - a brave new world that is united against the disease - a world that we can pass on to our progeny with the knowledge that we rose to the responsibilities of this new age.

Medical Journals have a great responsibility to channel the enthusiasm, activity, and expertise of various global health players into a cohesive and compelling public health agenda that brings visible and measurable benefits to humanity.

At Qassim University, every day offers opportunities, challenges and growth. IRSJ will continue to take full advantage of every technological innovation that will allow us to communicate new work to world.

We are dedicated to delivering what medical community has come to rely on and expect. We shall share a human stake in the development of global health.

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