



## TRANSLATIONAL RESEARCH: THE NEED OF TIME

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**ABSTRACT**

Translational research, is an innovative and multidisciplinary approach to bring laboratory findings into clinical practice or explain clinical findings in the laboratory settings. This primarily bridges the gap between basic scientific research and the clinical applications. It focuses on transforming discoveries made in the laboratory into practical applications to improve human health. For a number of decades most of the research funds were utilized for basic research thus a lot of knowledge is produced without clinical application. Thus it's now time to focus on translational work so that all the knowledge produce should have practical applications. This may give new diagnostic tests, identifies novel therapeutic targets planting a seed for development of new therapeutic molecules. This editorial presents a brief of the reasons to focus on translational research in countries like Pakistan.

**Key Words:** Translational Research, Medical Research, Basic Research

### INTRODUCTION

Translational research, is an innovative and multidisciplinary approach to bring laboratory findings into clinical practice or explain clinical findings in the laboratory settings. This primarily bridges the gap between basic scientific research and the clinical applications. It focuses on transforming discoveries made in the laboratory into practical applications to improve human health. For a number of decades most of the research funds were utilized for basic research thus a lot of knowledge is produced without clinical application. Thus it's now time to focus on translational work so that all the knowledge produce should have practical applications. This may give new diagnostic tests, identifies novel therapeutic targets planting a seed for development of new therapeutic molecules. This editorial presents a brief of the reasons to focus on translational research in countries like Pakistan.

#### Bringing basic and clinical research together

Basic research focuses on topics related to fields like genetics, immunology, and pharmacology, such as studying genetic mutations found in a disease or looking at molecular structure of medicinal plant extracts without exploring its use in clinic, this has wasted lot of money, energy and resources. Thus adding translational research aspect in all basic science discoveries such looking at genetic mutations in a disease and correlating it with clinical findings or clinical outcome can potentially result in the development of diagnostic or prognostic tests. Thus, this will act as a bridge, facilitating the translation of scientific knowledge into tangible patient benefits.

#### Medical research advancement

Putting basic and clinical research into different corners and when to bring them into practice would take decades. In contrast putting translational aspect in basic research project will expedite the process, ensuring that innovative treatments and therapies developed and made available to patients

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more quickly. This will enhance medical discoveries and solve medical health issues more quickly. Given the emerging infectious diseases and rising trend of chronic illnesses it is need of time to have translational component in each medical research theme.

#### **Provide foundation for precision medicine**

Precision medicine takes genomics, proteomics and all -omics involved in human body to provide tailored medicine for each individual. Thus translational research plays fundamental role in development of precision medicine concepts. This will significantly reduce number of failure of therapy, its side effects thus improve clinical outcome.

#### **Multidisciplinary approach**

The fundamental aspect of the translational research is multidisciplinary approach. All basic and clinical research departments have their contribution. This without any doubt fosters collaboration among key stakeholders of healthcare system including basic scientists, clinical practitioners and pharmaceutical industry. This collaboration is essential to ensure the utilization of scientific discoveries into clinical practice, and resulting in safe and effective therapeutic options.

#### **Targeting Unmet Medical Needs**

The pattern of new emerging diseases is alarming in medical sciences. Moreover, there are a number of diseases for which treatment is still a dilemma. Translational research has strength to explore new avenues for tackling these issues and attempting to answer these questions. This aspect not only helps in improving healthcare system by providing proper evidence based diagnosis and treatment but also boost economy by reducing treatment expenditure and improving clinical outcome.

#### **Streamlining Drug Development**

The pharmaceutical industry benefits greatly from translational research. By incorporating translational approaches in drug development. Researchers can identify potential candidates more efficiently, understanding their mechanisms of action, and assess their safety and efficacy. This leads to faster drug development and approval, ultimately benefiting patients.

#### **Health Economics**

Translational research has the potential to reduce healthcare costs by minimizing the time and resources needed to develop new treatments. This can result in more affordable healthcare solutions and greater accessibility to effective treatments.

#### **Improving Public Health**

By addressing health issues at their root through translational research, public health can be significantly improved. For instance, research into lifestyle interventions, preventive measures, and early diagnostics can reduce the prevalence of chronic diseases and the associated burden on healthcare systems.

#### **CONCLUSION**

Translational research is the need of the time for various reasons. It not only bridges the gap between scientific discoveries and patient care but also accelerates medical progress, promotes collaborations, targets unmet medical needs, streamlines drug development, has economic benefits, and, most importantly, improves public health. By investing in translational research, we can ensure that scientific knowledge is effectively translated into clinical practice, resulting in better patient outcomes and a healthier society. It is a crucial approach that should be further supported and promoted to meet the evolving healthcare challenges of our time.