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## Basic medical research as a means of solving national health problems

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# Basic Medical Research as a Means of Solving National Health Problems

Pages with reference to book, From 250 To 252

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## Medical Research in Pakistan

Medical research can be defined as an investigation aimed at understanding and managing the human health problems. It is broadly divided into two categories, basic medical research and applied medical research. The term “basic medical research”, usually implies a research aimed at solving a basic or a fundamental scientific problem related to health, whereas, the “applied medical research” is mostly used to identify the health problems and to design and evaluate policies and procedures for their management. It is mainly population based and addresses to some of the immediate problems of a particular country. In Pakistan research as a whole (basic and applied) has been neglected with the result that whenever there is a calamity, we look for outside help. We tend to forget that no one from outside is going to solve our problems, but the onus will be on us to come up with viable solutions to our various problems.

Being a developing country, the little focus on research has been exclusively on its applied component. In this regard various institutions, such as Pakistan Council for Scientific and Industrial Research (PCSIR) Laboratories, Pakistan Medical Research Council (PMRC) and Pakistan Atomic Energy Commission (PAEC), were provided with the government support to address to some of the national health problems. The results, however, fell very much below our expectations and despite some financial support the research could never take off as an organized scientific activity. Of the two, the one to suffer the most was basic research. It has been in the most deplorable state and should be a matter of concern to the medical community.

## Basic Medical Research in Pakistan

After 46 years of independence, the level of basic medical research in Pakistan is not at all satisfactory. There are a number of factors which have contributed to this sorry state of affairs in the country. For example, an intellectual environment conducive to research is missing. One contributing factor has been our pre-medical training which is absolutely devoid of research methodology. Therefore, the doctors we produce, in general, are not adequately equipped to address the medical problems through research means.

Another factor has been the lack of incentive for basic researchers. For a doctor there is little monetary reward in medical research compared to private practice. Moreover, promotions and appointments of the faculty in various national institutions generally take place without the pre-requisite of adequate research experience. Due to this, research has been perceived as a non-essential activity in the academic life and not as an essential component of the practice of medicine. Continuous brain drain of young, energetic and trained professionals to the developed world has further aggravated the problem. Inadequate library facilities in the country have led to the discouragement of those workers who had enormous potential for conducting research or were sufficiently committed to the demands of research. Another problem has been a lack of effective communication between various national research institutions. This has led to a research activity in isolation which is considered unhealthy for the growth and development of science in that region. Professor Abdus Salam has described this to be extremely detrimental to research. He states, “isolation in science leads to stagnation and stagnation to intellectual death”. All this has hampered the development of an appropriate infrastructure for research in the country. In addition to that, the meagre resources of the country did not permit the health planners to allocate a reasonable sum of money to this sector with the result that basic medical research could never take off as a scientific discipline necessary for the advancement of science and technology and better management of health related problems.

Although Pakistan Medical Research Council (PMRC) established in 1956 was assigned the task of initiating, supporting and coordinating medical research in the country, the component of basic research largely remained to be perceived as an “unaffordable luxury”. Pakistan Science Foundation contributed to some extent by funding some of the health related projects, however, a significant forward leap in the promotion of basic research was noticed in the late eighties when National Scientific Research and Development Board (NSRDB), University Grants Commission, provided funds to investigators on a number of research projects in various universities of the country. Unfortunately, this funding exercise could not be sustained because of drastic cuts in the research budget of the NSRDB and the situation returned back to its original appalling state.

### **Is it a luxury?**

The argument that in a developing country like Pakistan with very limited resources, basic medical research would be a luxury, is totally untenable. Because it is the basic research by which we hit the root-cause of the problem. It is the basic research which enables us to unravel the mysteries of nature. It is the only key by which we can find solutions to various health problems. The only requirement is that basic research approach should be problem-oriented and should have a direct relevance to the country needs. It should be well organized, conducted by the well-trained and dedicated individuals and encouraged and supported by national institutions.

### **Significance of Basic Research**

Basic scientific research is now universally accepted as a national investment because a right type of basic research is not only important for the growth and development of science in that region but also contributes towards the socio-economic development of the society as a whole. When the basic research pertains to some of the medical problems of the country, it contributes to the well being of the population of the whole region in general and of that country in particular. For example, in early fifties a significant scientific discovery, quite basic in nature, was made in Dhaka which ultimately produced a revolution in the management of diarrhoea! diseases. The discovery which may very well be regarded as one of the most important discoveries of this century in the medical field is termed as the “Linked Absorption Mechanism” which states that “glucose in equimolar amount with  $\text{Na}^+$  (100 mM) facilitates water absorption through the gut”. This simple, basic scientific observation has made the basis for “oral rehydration therapy” and has saved millions from dying of diarrhoea! diseases in the third world countries. Similarly, genetic engineering has produced a revolution in the field of biology. It has turned into a multi-billion dollar industry and according to a writing from Prof. Arthur Kornberg, a Nobel Laureate at the Stanford University, USA: “Genetic engineering is solely an outgrowth of basic research. It was never planned, nor was even clearly anticipated. This multibillion dollars industry projected by Wall Street is entirely a product of the knowledge and opportunities gained from the pursuit of ‘irrelevant’ basic research in universities.” From this it becomes quite apparent that the roots of all “applied” research in fact lie firmly buried in sustained high quality basic research.

### **Priority Health Problems**

Some of the priority health problems of Pakistan have been listed below. These problems need urgent attention of the scientists in the country.

1. Communicable diseases (diarrhoea, acute respiratory infections, immunizable diseases, malaria, tuberculosis, hepatitis, leishmaniasis and urinary tract infections).
2. Non-communicable diseases (diabetes, cardiovascular diseases, malignancies, renal and G. I. diseases, hypertension, etc.).
3. Pharmaceuticals and environmental health (development of new drugs especially from indigenous plants, environmental pollution).
4. Population studies (fertility regulation, reduction of low birth weight, risk factors in pregnancy).
5. Nutrition (undernutrition, anemia, endemic goiter).
6. Drug abuse.

### **Concluding Remarks**

Not doing research is a luxury which a third world country like Pakistan can ill-afford. Research should be perceived as a national investment necessary for solving its plethora of health problems. Expectations of an immediate reward for this investment would be too simplistic. However, if we make a beginning today, within a few years we shall be able to see the immense benefits of this activity.

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