

Translational Research: Definitions and Relevance

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Abstract

Research is a driven force for improved job performance in any profession and sector of a nations' economy. Translational research adopts a scientific investigation/enquiry into a given problem facing medical/health practices to surmount such problem which will helps to raise aggregate health performance. Over the years, there seem to be limited literature on the relevance of translational research. This creates the fertile ground for the author to investigate the relevance and definition of translational research in the health sector of a given country. This paper explores the brief overview of translational research; definition of translational research; and relevance of translational research - It raise the competencies of health/medical practitioners; reduction in health disparity; patient centered research; it adopts partnership catalyst; and it bridge the gap between medical practice and health performance. It was recommended among others that funding of translational research should be given priority by government among other stakeholders, this will help to ensure that the entire research process do not experience hinges or set-backs.

Keywords: Translational research; Definition; Relevance

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Introduction

Translational research appears as early as 1993, there were relative few references to this terms in Medline literature during the 1990's, and most references were to research about cancer [1]. The terms 'research translation' and 'translational research' appeared in the literature in the 1990's in response to significant increases in basic or clinical science discoveries with little improvement in the provision of health care and health outcomes [2,3]. Translational research as a concept has been widely used and applied in scientific literature for more than a decade [4]. The concept and tenets of translational research is of prior value in the health sectors of any nation. According to the sources online, the concept of translational research has become critically important in contemporary biomedical research and practices [5]. Translational research is geared toward bridging the gap between practical laboratory practices and performance related issues which seem to face the health profession. In another observation Keramaris, et al. was of the view that, translational research has emerged as a scientific discipline rather recently, to bridge the gap between basic and clinical science [6].

Translation research is showing up in everything from research grant proposals to the curricula of leading medical schools and

school of public health [5]. Translational research is conceived due to the elongated time often taken to bring to bear discovered medical idea in practical terms in a health system. Translational research in many ways can trace its primary impetus to the notion that this time lag is seem as too long, certainly longer than necessary, and that there must be a better way to move research to practice more quickly without sacrificing quality or increasing costs [5]. Considering this Westfall, et al. enunciated that, it takes an estimated average of 17 years for only 14% of new discoveries to enter day-to-day clinical practice [7]. In another finding it was asserted that the median translation lag was 24years between first description and earliest highest cited articles [5,8].

According to the data retrieved from the online sources translational research is often used interchangeably with translational medicine or translational science or bench to bedside [9]. It is worth noting that translational research to a large extent differ from translational medicine – translational research adopts a scientific investigation/enquiry into a given problem facing medical/health practices to surmount such problem which will helps to raise the health performance of a nation; while translational medicine is concern with application of proven scientific medical knowledge in the preventive, therapeutic, and

diagnostic measures in treating besetting ailment. This buttressed the fact that, translational medicine is a subset of translational research. Similarly, some researchers were of the view that translational research is an effort to build scientific research to create new therapies, medical procedures, or diagnostic [9].

Literature Review

Definition of translational research

The term translational research has varied definition to different scholars, professional bodies and persons. It is expedient to opine that despite variations in definitions, three attributes must be worth noted in every definition— adopt scientific approach; involves innovative investigation/enquiry; and is gear toward improved performance. Translational research adopts a scientific investigation into a given problem facing patients, medical/health practitioners with objective of proffering solution to the problems in order to raise the health performance of a nation. This definition portrays the fact that translational research pave way for discovery of health/medical best practices to be used in the prevention, therapeutic, and diagnosing patients besetting ailment by health/medical practitioners health/medical best practices to be used in the prevention, therapeutic, and diagnosing patients besetting ailment by health/medical practitioners.

According to Szilagyi, 'translational research induces two areas of translation; one is the process of applying discovery generated during research in the laboratory, and in preclinical studies, to the development of trials and studies in humans; the second area of translation concern research aimed at enhancing the adoption of best practices in the community; cost effectiveness of prevention and treatment strategies is also an important part of translational science' [10]. According to the European Society for Translational Medicine (EUSTM) translational research is an interdisciplinary branch of the biomedical field supported by three main pillars: bench side, bed side, and community [11]. Translational research is a scientific investigation into problems facing patients, health/medical practitioners to improve the standard of the health sector of a nation. Translational research looks at how best to translate research into practice and/or policy e.g. research that addresses gaps in translation [2]. It is the process of transforming research innovations into new health products and diagnostic and therapeutic methods and is usually carried out in academic institutions [6]. According to Cohrs et al. [1] it is an effort to build on basic scientific research to create new therapies, medical procedures, or diagnostics. Similarly, Westfall, et al. submitted that translational research fosters the multi-directional integration of basic research, patient-oriented research, and population-based research, with the long-term aim of improving the health of the public [12]. Woolf et al. viewed translational research as an effective translation of the new knowledge, mechanisms, and techniques generated by advances in basic science research into new approaches for prevention, diagnosis, and treatment of disease [13].

Relevance of translational research in the health sector

The relevance of translational research is enormous in the

medical and biological profession and on the long-run in any health practices/sector. Translational research in a given health sector has the following relevance.

Reduction in health disparity: Health disparity is defined as the process or deliberate act in which given proportion of people are unable to access or obtain equal medical treatment or attention in given health institution. The issue of health disparity among patients is often because of economic power, social status, political affiliation and educational level of people. The bedeviling problem of health disparity in most countries of the world especially developing and less developed country has left much to be desired by relevant stakeholder in the health sector. Overtime, stakeholders often benchmark possible solution to health disparity, but to no avail solution insight has not always been in view. This has make research expert to adopt different approaches over the years, but solution seems not to be reached/apprehended, by these experts. Translational research helps to reduce this disparity in the health sector, given the fact that it adopts pragmatic approaches in the process of enquiry into the problems facing a health sector, taking into consideration in the process a wide range of participants irrespective of their income level, educational level, marital status, political affiliation, social status, and economic power. Sequential to the forgoing, on the long-run will pave way for equal health opportunity.

Bridging the gap between health/medical practice and health performance: In a health sector of a nation, research is often directed towards a better health performance on the aggregate. This is since, research is always conducted to meet the present and futuristic needs/challenges facing a health sector, with an insight of surmounting them. In contemporary health sector of any nation, there exists a gap between health/medical practice and health performance. Translational research helps to bridge this gap as depicted in **Figure 1**. The intricacies of the **Figure 1** are that, translational research is conducted to raise the standards of medical/health practices in a nation, which will subsequently lead to an enhanced aggregate health performance.

The simple working in **Figure 1**, is that, in the lower part of the diagram translational research (by researchers) makes an enquiry/ investigation into challenges (examples are administrative lags, practice lags, operational challenges among other) facing health/ medical practices and health performance as represented above (with the green-arrows), after the processes of investigation, solution insight to the challenges is fed- back to the system (as represented with the dark blue-arrows). This will result in an upward movement, inducing improved health practices which will consequentially leads to improved health performance (both depicted by black-arrows). The balance factor (yellow-arrow) in the upper part is an avenue use in translational research to check-mate improves health/medical practices to improved health performance/enhanced aggregate health performance; or checkmates the effectiveness and the resultant impacts of the entire research processes.

To raise the competencies of health/medical practitioners: It is expected of a given health sector to have competent medical practitioners, because the health sector performance dependences greatly on it. Research in any field of human

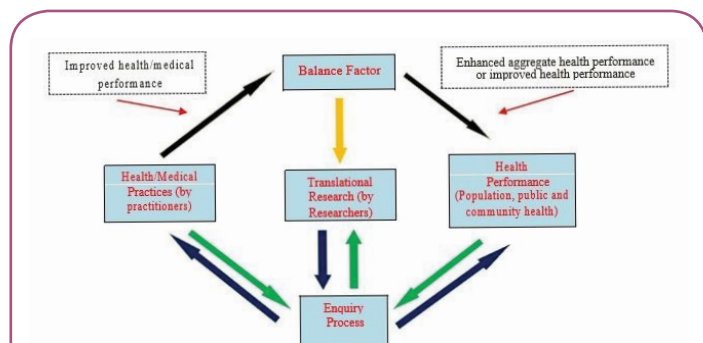


Figure 1 Gap between medical practices and health performance as bridged by translational research.

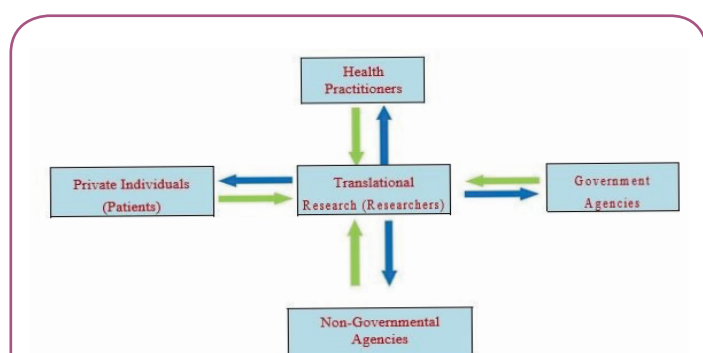


Figure 2 Partnership in translational research.

endeavor is driven by the purpose of raising the competencies of practitioners involve in a field of human endeavor in which the research is conducted. Translation research investigates empirical and theoretical issues affecting practitioners which tend to retard their performance and adopt scientific remedy to such issues. Some of these issues include; problems of outdated knowledge, administrative lags in medical practices, lack of job commitment, health problems of patients, problems associated with laboratory safety practices, unethical problems in the health sector, and collaboration/partnership issues among others. The similitude of the forgoing is since, translational research explores prior and necessary apparatus for which new skills, and knowledge, and practices are discovered, in which practitioners in the health sectors will adopt and apply for improving their performance on the aggregate. In same similitude, it was found that the end of translational research is the production of a promising new treatment that can be used with practical application [13,14]. Considering this, translational research adopts a proactive enquiry into problems facing practitioners to proffer solution to their besetting problem in the process of carrying out their work; this will pave way for enhancing the competencies of health/medical practitioners. In line with the forgoing it was also found that translational researcher can identify the underlying clinical consequences of new discoveries of basic research, and can relate them to confirmed needs of the clinician, [6]. Adoption of the proven skills, procedures and finding from a translational research will serve as a catalyst for raising the competencies of practitioners which will positively results to a better health sector.

It adopts partnership catalyst: Global trend of globalization has make research to revolve round partnership. Partnership in research is an avenue for ensuring that the process of investigation into a given problem of interest is explored with the aim of having a wide range of different groups of participants, which in the process of time is geared towards ensuring a lasting solution is achieved in the research process. It helps to ensures that necessary data from the field survey cover a wide range of stakeholders that will ensure, that the result of the entire research process solve the besetting problem for which the research-study was carried out. This attribute is highly needed in modern research in other for it to have a lasting solution to the problem-driven-enquire. Translational research adopt partnership as a prior tool of ensuring that relevant stakeholders are involves in the enquiry process, this tends to help to proffer formidable solution based on data emanating from the field survey and in the long-run enhancing a better health sector. According to some researchers, translational research involves partnership [collaboration] among scientists from multiple disciplines [1]. In other words, partnership helps to create a strong synergy between patients, researchers, health practitioners among others with the aim of improving health performance of a given country based on the findings of the study conducted. In same vein it was also supplemented that, translational research seeks to close that gap and improve quality by improving access, reorganizing and coordinating systems of care, helping clinicians and patients to change behaviors and make more informed choices, providing reminders and point of care decision support tools, and strengthening the patient - clinician relationship [5]. In another finding, it was opined that the needs and aspirations of patients and consequently of the society (public, industry insurance organizations health system), becomes the fulcrum of the new and integrated research strategies which creates a fresh, dynamic links between clinical practices and basic science [6].

As shown in **Figure 2** translational research is at the receiving end of a larger quota of data/information/resource (human/material) through a translational researcher, while request is often given to health practitioners; government agencies; non-governmental agencies; private individuals by the translational research (researcher), that would assist him to cater for prior needs which seems to affect him/her and the health sector in general. The arrows in **Figure 2** depicts the free-flow of data/information/ resource (human/material) between translational research and health practitioners; government agencies; non-governmental agencies; private individuals during the process of problem-driven-enquiry with the aim of solution insight to perceived problems to better the health sector of the nation concern.

Patient centered research or patient oriented research: Research is a tool to meet a given needs of individual or a set groups of people. In other words, research is conducted bearing in mind the problems of an individual or a set groups of people with the aim of proffering established scientific solution to remedy such problems. Health/medical practice is proven essential and good, if it tends to concentrate its interest on a patient(s). In same similitude, translational research revolves round the patient(s), that is 'patient-centered-research' or 'patient oriented research'. Patient-oriented research to refer to a research that include

groups of patients or healthy individuals that are designed to understand the mechanisms of disease and health, to determine the effects of a treatment, or to provide a decision analysis of the care trajectories of patients [12]. In a given health sector, patient centered research is the best research approach that will overtime helps in the investigation into patient's problems (ailment, and other health challenges) facing him/her, with the objective of providing lasting solution to same problems based on a solidified scientific enquiry. According to some researchers the patient centered nature of translational research not only influence the structure and management of research procedures, but also the very essence of research strategies [6]. Translational research takes into consideration needs, aspirations and problems facing the patient(s) in the investigation/enquiry process with an objective of adopting a scientific approach in meeting the needs, aspirations and possibly surmounting the problems using best practices. In other words, in translational research the patients' needs, aspirations and problems are taking into consideration in the entire research processes. The similitude of the forgoing tends to make the patients to be important in translational research and health practitioners in the health sector. This is because, as the entire research process is accomplished, practitioners are predisposed to adopt it to cater for patients' problems, needs, aspiration which in the long-run helps to facilitates an improved/better health system or sector.

Discussion and Conclusions

The health sector of every nation of the world is facing one challenge or the other. This challenges ranges from disparity in health service system; outdated knowledge among practitioners; and challenges of enhance aggregate health performance or improved health performance. Translational research is an important tool to improve the health sector of any nation of the world, despite global challenges, this is since, it can be used to remedy challenges. It is in line with relevance of translational research that it was recommended that:

1. Stakeholders in the health sector should endeavor to participate in the research process. This will help to have reliable data, and similarly stakeholder-centered-research which is one of the relevance of translational research.
2. Awareness campaign should be encouraged in the process of translational research and after the research process. This will help in achieving the purpose and relevance of translational research.

3. Funding of translational research should be given priority by government among other stakeholders. This will help to ensure that the entire research process do not experience hinges or set-backs in terms of financial constraint.

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