

Translation of Trans2Care concept to the West-African countries: looking beyond tomorrow

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Abstract — The regional partnership established between Italy and Slovenia under the TRANS2CARE Project aims at creating innovative products and services to improve public healthcare system through enhanced knowledge transfer between project partners and stakeholders. This framework of borderless partnership has potential to be translated to the West-African region to effectively utilize the available resources of member states. Such synergistic cooperation is needed to tap into the abundant ethnopharmacological potentials of the region to create an affordable healthcare system and economic advancement. Consequently, research networks and improved healthcare system in the region will drastically reduce braindrain of researchers and physicians.

Index Terms — European Union, knowledge translation, TRANS2CARE, West Africa

1 RESEARCH IN EUROPE: IS GLOBALIZATION HARMONY?

It has been said that arguing against globalization is like arguing against the laws of gravity. – Kofi Annan, Secretary General of UN

European Union research programs are quite complex, but enable researchers, research institutions and businesses to increasingly circulate, compete and cooperate across borders. The objective is to give them access to a Europe-wide open space for knowledge and technologies in which transnational synergies and complementarities are fully exploited.

While most research activities, programs and policies take place at regional and national levels, no single country offers sufficient resources to be competitive on the world scale. To strengthen the penetration of European research ideas, joint activities and policies are increasingly designed and operated from a transnational

perspective, including, where relevant, cross-border co-operation. It is now clear that transnational co-operation enables the most efficient and effective use of national and regional resources.

The success of globalization within the EU can be seen in many dimensions. In health care, all EU and some other European countries, offer their citizens a free European Health Insurance Card, which provides insurance for emergency medical treatment when visiting other participating European countries. Another important field is education, where EU strongly supports globalization of universities via the Bologna process, which brings comparable standards and compatible degrees across Europe, and the Erasmus Program, a university international exchange program, which is nowadays a symbol of European student life. However, although Europe's 4000 universities have big potential, most of it unfortunately dies instantly because of various rigidities and hindrances primarily due to conservative politics practiced by universities.

Scientific development in the EU is encouraged by various programs. Some are strictly research-oriented and based on scientific excellence, while others are funded through European regional development funds. The latter aim to strengthen economic and social cohesion between regions in the EU intending to underpin regional capacities for research and technological development. The ultimate goal is creating a more-or-less harmonious research space inside the EU. In this manner, EU trans-regional projects, such as TRANS2CARE, can function as a reference regarding science and health organization for developing countries.

Can we translate the EU's successful experience of globalizing science to another continent?

2 PROBLEMS IN WEST AFRICAN HEALTH SYSTEM

A replication of this kind of working relationship between countries in the West-African sub-region is long overdue as the health care system in this region has been in dire need of a boost. About 250 million people reside in the 15 independent states of West Africa and this is about a quarter of the whole of Africa [1]. According to the Sahel and West Africa Club of ECOWAS [2], the last major world region where mortality rates are still very high is Sub-Saharan Africa. The disease burden in West Africa is characterized majorly by malaria, which is the primary cause of morbidity and mortality. Furthermore, 100% of cases of trypanosomiasis and 90% of cases of yellow fever [3] are recorded in West Africa, while cholera and HIV/AIDS also present a serious threat. Others include schistosomiasis, meningitis, dracunculosis, onchocerciasis and leprosy. Furthermore, the average doctor to population ratio in Africa is 2.3 per 10,000 inhabitants and this does not compare favorably with 33.3 per 10,000 inhabitants in Europe [4]. More so, estimates show that about 70% of West Africa's doctors are found in Nigeria alone while countries such as Niger, Liberia and Sierra Leone have less than 1 doctor per 33,300 inhabitants [3]. Taken altogether, average life expectancy at birth in Africa is 54 years, while in EU is 75 years [4].

3 ETHNOPHARMACOLOGICAL POTENTIAL OF WEST AFRICA

It is not all bleak in this part of the world as the pharmaceutical potentials of African medicinal plants are immense, and West Africa has the human and natural resources to become an even greater producer of natural plant products of medicinal value [5]. Furthermore, in contrast to the 1:40,000 ratio for medical doctors to the rest of the population in sub-Saharan Africa, the ratio of traditional healers to the population is approximately 1:500. This means that there are 80 times as many traditional healers as biomedical doctors [6]. More specifically in West Africa, in the Kwahu district of Ghana the ratio of traditional healer to people is 1:224 compared to 1:21,000 for medical doctors. West Africa, like other regions in Africa and Asia, has had a long history of traditional medicine practice, however, unlike the Chinese and Indian medicinal plants, much of the phytochemical compositions and medicinal values of the natural products have not been fully researched and documented. Each community in West Africa has its unique approach to health and disease management. It can thus be argued that "there are as many traditional medicines as there are communities" in the West African region [5]. The World Health Organization (WHO) has stated that traditional medicine is one of the strongest tools for taking "total health care" to the world's unreached population [5]. Due to constraints such as paucity of funds, high cost of chemicals, lack of equipment and shortage of manpower, research oriented into the bioactive components of medicinal plants in West Africa has been hampered. Even more, in countries where research activities are on-going, they have become mere academic exercises, as there is no "benchto bedside" transmission of research results.

To elaborate potentials, there is an immense challenge for the research community in studying traditional medicines used for hundreds of years. Specific climate conditions, such as high temperatures with intra-season drought and rainfall unpredictability, can lead to a plethora of novel, not yet isolated, plant chemicals specific to this region. Isolation, coupled with computational *in silico* molecular docking studies, can lead to the characterization of novel lead compounds with therapeutic potential, and possibly to the development of novel drugs.

4 TRANSLATION OF EUROPEAN NETWORKING TO WEST AFRICA

The concept of TRANS2CARE borderless partnership, as implemented in Europe between Slovenia and Italy, provides a "light at the end of the tunnel" - serving as an excellent framework that should be copied by the countries in the West African region. The idea of Trans2care networking project can be summarized as "aiming at establishing a permanent, bi-directional flow of knowledge transfer among the project partners, industry and other stakeholders, so to establish an environment generating innovative products and services for the public healthcare system. In particular, the project addresses questions about prevention, diagnosis and treatment of widespread diseases"[7]. As such, it appears appropriate for West Africa to start its implementation.

One obvious fact is that co-operation is needed among West-African countries to

fight the scourge of diseases and ensure efficient health care delivery through applied research on the abundant medicinal plants to be found in the region, training the numerous traditional healers, and development of phytomedical and nutraceutical industry. The latter is important for ensuring that the abundant natural products serve as raw materials and that these plants do not become over-exploited or extinct. Pharmaceutical production is normally capital-, knowledge- and technology-intensive, but ethno-pharmacological studies of indigenous plants will enhance the discovery of plant bioactive compounds that will improve the health of the population through nutrition. These studies will also help to identify plant bioactive compounds to open perspectives for the local pharmaceutical industry, especially for over-the-counter products, which would aid the economic development of the region. Networking of health care professionals and leading researchers amongst countries in West Africa can bring benefits to both the health care system and industry by promoting production of low-cost drugs. Primary production of pharmaceuticals in the region will also encourage technology transfer between academic research and industrial production [8,9].

Ensuring equal access and fair treatment for all interested parties across the West Africa can be a daunting task, which requires certain rules and procedures, as well as bringing attention to the need for better articulating the importance of such networking at a high political level. To improve research systems, a more favorable environment for transnational mobility throughout research career in West Africa must be created. Research should not be perceived as a closed system, but instead as an open and dynamic systems based on partnership and dialogue with researchers from all over the world, as already successfully implemented in the EU. Furthermore, removing obstacles to mobility can bring together countries in a community whose aim is to achieve integration via joint research activities with a commitment to economic expansion.

5 AFRICAN BRAIN GAIN – BRAIN DRAIN PROBLEM

A translation of this type of project to West Africa will not only create an environment that will attract foreign researchers for international (brain gain) collaboration, but will also stem the rising tide of brain drain. About six years ago, a New York Times' article [10] revealed that legal immigration into the United States by Africans had reached a similar magnitude to the days of the slave trade. Scientists, researchers and medical personnel are the worst hit by the brain drain. This was confirmed by French President Nicolas Sarkozy, who stated, during a visit to Senegal, that 'there are more doctors from Benin (West Africa) in France than in Benin itself' [11]. Moreover, about ten years ago, it was observed that there were more Sierra Leonean (West Africa) medical doctors in Chicago than in Sierra Leone [12], while the WHO observed in 2006 that more than 25% of doctors trained in Africa work abroad [13]. However, it is anticipated that science students would choose to study and work in Africa if they had access to high-quality training [14]. There is therefore an increasing need for networking among West African countries to develop 'centers of excellence', where

researchers can have access to modern research facilities, and where their research findings can be translated to products and services, which will improve the quality of service in healthcare centers.

6 CONCLUSION

Such a network will bring about a ‘pulling-together’ of resources among member countries that will have a synergistic effect on health care delivery, new employment generation, pharmaceutical/nutraceutical product development, and training of medical personnel. Moreover, pragmatic cooperation that defies cultural, language, religious and economic barriers and transcends the political differences that have isolated member states is what will indeed give a birth to a united community of West African states.

A central objective of such joint activities is to establish the ‘fifth freedom’: the freedom of movement of knowledge. Research and innovation arising from this will offer solutions to overcome the great challenges that face West African countries these days.

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