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International Medical Knowledge Transfer as a Tool of Public Diplomacy: The Case of Croatia

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Summary

The international dissemination of expertise in most transition countries is underdeveloped because of a number of developmental and practical challenges. Croatia's overall educational and innovatory potential for health knowledge transfer remains above average when compared to what has been achieved by other new EU Member States, and it is dominated by public sector research institutes and universities. This unrealized potential could be improved further by enhancing the international dissemination of Croatian medical expertise using public diplomacy.

The aim of this paper is to address the way in which the international dissemination of medical expertise in transition countries can serve as a tool of public diplomacy to improve its scope and success, in addition to advancing the scope of the knowledge transfer itself. The case of Croatia is used as an example. An effective communication strategy is an important element of public diplomacy that, by influencing public opinion, provides the necessary precondition for active societal support of the willing participants in the transfer of knowledge. Hence, at the beginning of this paper we present the concept of international knowledge transfer in general, and then proceed to present the example of the transfer of Croatian medical knowledge.

The second part of this paper addresses elements of public diplomacy and different communication mechanisms and the potential for the international dissemination of domestic medical expertise, with the primary emphasis on Croatia. Finally, we present an overall analysis and an algorithm of public diplomacy activities that each country in transition can adopt to overcome failures associated with the international dissemination of medical expertise.

Keywords: Public Diplomacy, Healthcare System, Medical Knowledge Transfer

Introduction

In transition countries the transfer, or dissemination of knowledge is beset by several sources of failure (Čučković, 2006). Consequently, transition processes produce a similar, if not identical, effect on the features and possibilities for the international dissemination of medical expertise. Therefore, using public diplomacy to advance the international dissemination of knowledge in transition countries becomes even more important, as does the utilization of a communication strategy that, by influencing public opinion, provides the conditions for active societal support of those who wish to participate in and contribute to its development.

When considering the influence of public diplomacy on the international dissemination of medical expertise, it is safe to say that its most important competitive advantage is in facilitating an exchange of information and building trust amongst the communicating participants. Furthermore, public diplomacy as a component of the healthcare system, has become an exciting new field in which scholars and experts, alongside medical professionals could participate (Ornstein, 2015).

Because current international trends have been marked by ongoing changes in the global market, where they represent special adaptation challenges for small transition countries such as Croatia, the pursuit of the international dissemination of medical expertise through more active and effective public diplomacy is even more warranted. In fact, activity in public diplomacy could draw from its past medical achievements and existing resources, which for Croatia exist in the areas of forensic, sports, plastic, dental, transplantation and personalized medicine. Further efforts in public diplomacy should also include the merging of other sectors, such as in health tourism, which holds a significant potential for the international dissemination of Croatian medical expertise.

Public diplomacy can advance its scope by capitalizing on the unrealized potential of the field it aims to promote. The Croatian potential for the international dissemination of its medical knowledge has found its roots in the high quality and generally accessible domestic medical education as well as in all of its ancillary services. Furthermore, new knowledge, innovation and initiatives contribute highly to the international competitiveness of Croatian medical education, which adds to the resources from which the international dissemination of Croatian medical expertise can draw. Consequently, a further strengthening of Croatian educational resources could enhance its credibility and, through public diplomacy activities, initiate its export potential worldwide. The international recognition of Croatian medical education as a brand as well as the recognition of innovation in the medical field can, in turn, increase international investment in Croatian healthcare areas such as the pharmaceutical industry, the healthcare system and health tourism. Currently, the missed potential in Croatia is particularly evident in that up until now, only a few

out of thousands of medical service and global health organizations have been attracted to do business in the Croatian health sector. Examples of such investments in private health institutions are foreign investment companies (Special hospital (SH) Acromion, SH Magdalena, SH Katarina), while at the same time no foreign medical institution is currently providing health services in Croatia. Thus, this field presents several challenges and opportunities for public diplomacy to further its role in the field of knowledge transfer and economic development.

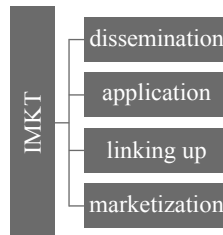
Finally, all the efforts undertaken in public diplomacy could result in additional opportunities to establish new partnerships between the Croatian health sector and foreign partners and result in a positive sum game for all involved in the international dissemination of medical expertise. This would raise additional global demand for Croatian knowledge in medical services, enhance its international recognition, and give Croatian medical expertise its proper status.

International Medical Knowledge Transfer and Public Diplomacy: the Croatian Context

Knowledge Transfer

Knowledge dissemination is only one facet of knowledge transfer which, in addition to dissemination, includes application, linking up, marketization, etc. (Figure 1).

Figure 1. Main Components of the International Medical Knowledge Transfer



In the era of modern medicine, the dissemination of knowledge is predominant in sub-specialized and multidisciplinary approaches in healthcare, allowing for open, two-way communication with the research and innovation sector and supported by different institutional incentives, the European Commission, universities, research organizations, financial institutions, and the local community. They contribute to the creation of cooperation alliances which are made of partners with different skills who come together to build value for users. Cooperation within this

network of different participating entities depends on their individual financial, operative and intellectual power and overlaps with different activities. These value-chain partnerships evolve progressively with time and practice in their possibilities as living systems (Moss Kanter, 1994). Europe has been facing several economic, demographic and political changes influencing its sustainability, and has recognized the importance of sustainable growth through the collaboration of the private and public sectors as well as the importance of the positive and transforming impact of new technologies on traditional operational models applied to healthcare institutions, universities, banks, and state and private research organizations.

The EU is still running behind the United States with regard to the dissemination of knowledge, despite a widely spread network of ‘Knowledge Transfer Offices’. In parallel, China has become the world leader in the dissemination of knowledge because of the acceleration of the process (Burrows, Drummond and Martinsons, 2005). Europe has focused its development on strictly defining the future market niches and basing its potential of knowledge dissemination on current resources and traditional cooperation between business and science. Despite differences in population, functionality, professionalism, and the Knowledge Transfer Offices in certain countries, participation has taken place in the European initiative and innovation within the Triple Helix (i.e. a collaboration of governments, universities and business). For example, in Ireland, the Innovation 2020 commitment to increase public and private investment in research and development (RDI) to 2.5% of GNP by 2020 is challenging. More specifically, since publishing its strategy in 2015, Exchequer funding of RDI increased from €736m to approximately €768m in 2017. However, this increase in the investment value has not translated into an increased rate of RDI as a percentage of GNP. In fact, the GNP growth rate has increased at a faster pace than that of national investment in RDI since 2015 (Government of Ireland, 2018).

To enhance economic competitiveness and long-term progress in innovativeness, Europe plans to reach an investment of 3 percent of GDP into private and social research. To achieve the necessary innovation growth, the EU has invested 7 billion euros into FP7, the European Union’s Research and Innovation funding program, to invest into a better use of its potential, that is, into more researchers, research projects, and the upgrade of the university research centers’ ecosystems. Open innovation encourages collaboration within a network of innovative ecosystems that attract innovation and ensure economic progress. The Commission ambitiously proposed Horizon Europe for the 2021-2027 funding period, with the intention to strengthen the EU’s technological and scientific bases, to boost Europe’s innovation capacity, competitiveness and jobs. All of this is expected to fulfill citizens’ priorities and sustain Europe’s socioeconomic model and values. Through this funding program, the EU plans to invest a 100 billion € in a research and innovation

funding program for seven years. The interim evaluation of the Horizon 2020, funding scheme, the Lab-Fab-App report (informally the Lamy report), foresight studies and various other reports all constitute building blocks that have been used to assess the future funding program (European Commission, 2018).

Knowledge dissemination is the key incentive for open innovation, the research and development of innovation based on the multilateral cooperation of multiple factors engaged in technological supply and demand (Andrić, 2012). Institutions of higher learning that, in addition to the traditional educational activities, also participate in new research and knowledge dissemination activities, and respond to the needs of their users to become creators of new innovative achievements, are key actors in this cooperation (*ibid.*). When looking at the creation and dissemination of knowledge in medical services, the universities and public research institutes in Europe remain the focal institutional hubs in this field. Academic research typically occurs in an open environment and frequently involves formal as well as informal collaboration with other organizations, and in the medical research field this is of particular importance, namely, members of the academic community are skilled in presenting their research results in the traditional form of scientific articles, but without further development in the research innovation area they do not offer a good basis for valuable patent protection (*ibid.*). Medical scientists need to acquire training to fully utilize the documenting and management of patent rights and ownership. This, for example, is an additional weakness of the Croatian scientific community and a contributing factor to its lack of financial sustainability considering the overall costs and timing.

However, the internal development of research that results in marketable products is not the primary interest of academia. Although innovative and promising research results may attract the interest of commercial parties, it will be so only if there is a well-defined proprietary position on such research results. This is especially important in the field of medicine where costs and risks that are associated with the development of new products are prohibitively high for academic institutions and require the commitment of one or more commercial partners. Public diplomacy could bring a significant improvement in the process of ameliorating such risks and costs, because establishing and maintaining proprietary positions depends on the appropriate and continuous management of intellectual property (IP) rights (*ibid.*).

The Croatian Context

Croatia offers an interesting example of medical knowledge transfer and its future potential because it is a new and consolidating democracy whose past experiences with the international exchange of knowledge is relatively limited. Hence, it offers a great example of a country that has been promoting its medical knowledge transfer

for the past two decades based both on its pre-transition public health heritage, as well as its more recent developments in medicine from the war and post-war period. The current and past Croatian medical achievements are based both on institutions and organizations, and highly recognized experts in the international health sector. More specifically, Croatia has four high quality, excellent academic centers (Medical Schools in Zagreb, Rijeka, Split, Osijek) within its national healthcare system as well as top quality healthcare institutions ensuring care for patients. These academic institutions and research centers of excellence have moved toward becoming better connected to professionals and cooperating with other Croatian and international institutions providing professional education and scientific research – for example Croatian universities' clinical hospitals (KBC Zagreb, KBC Split, etc.) and private institutions (SH Magdalena, SH St Catherine, etc.) A healthcare system based on such healthcare institutions can become easily competitive in the international medical knowledge market. All of this creates the preliminary conditions for the recognized value of medicine in a given country.

Also, within its existing legacy is the historical achievement of the Andrija Štampar School of Public Health, founded in 1926 as the institution for international collaboration under the umbrella of the WHO and of other public health organizations to provide preventive healthcare service, to advance public hygiene, and to study problems related to community, industry and food hygiene (Andrić, 2012). Today, the Andrija Štampar School of Public Health (2014) organizes medical educational activities through several postgraduate studies, as well as through projects of international collaboration – CHRODIS – the EU funded joint action on chronic diseases and the promotion of healthy aging across the life cycle.

Finally, the legacy of the health system's organization during the Croatian War of Independence, the present successful Organ Donation Program for the donation and transplantation of organs (Živčić-Čosić et al., 2013), modern dental, plastic and sports medicine as well as rehabilitation services in tourism all represent ideal areas for the promotion of present Croatian health service and expertise. Still, currently the most important achievements are accessible medical education of health professionals in coordination with EU law, and their participation in the international professional associations.

Public Diplomacy

Public diplomacy is a tool that can effectively encourage and facilitate the international transfer of knowledge by using several of its characteristics. In a wider context, public diplomacy remains a key instrument of official foreign policy to support its objectives, or at least, reduce hostility to any country (Andrić, 2012). While traditional diplomacy is all about relationships between the representatives

of various countries, or other international actors and stakeholders, public diplomacy focuses on the general public in foreign societies and, more specifically, non-official groups, organizations and individuals (Tuch, 1990). In its application, it can impact different participants in the communication process, and its impact and success largely depend on the persuasiveness of the free information that the diplomats may want to share (Nye, 2008). Because of its complementary and less overt approach to the traditional forms of diplomacy, public diplomacy should be considered as a constituent part of world politics, and its rise to a new level within the realm of diplomacy suggests that an evolution of diplomatic representation is under way (Hocking and Mellisen, 2015).

Because it aims to raise awareness, broadening perspectives and opening minds, public diplomacy is not just a mere monologue or dialogue, but rather an extensive engagement involving multiple actors at multiple levels. Today, such an engagement is possible through new forms of action whose benefits come both from traditional media, such as newspaper, TV and radio broadcasting, and information and communication technology (ICT) like a web campaign, Facebook and Instagram marketization. A good example of such activity in public diplomacy is the European Commission's Horizon 2020 project "Healthy aging" (EuroHealthNet, 2018). The extent to which the various tools of public diplomacy are being used in Croatia is the topic of the following section.

Public Diplomacy in Croatia

Croatia is a relatively small European country, where a positive outlook on development could be furthered by improving the present public diplomacy efforts, upgrading its positive characteristics and rectifying the negative ones to enhance its overall status. The processes of accessing the EU and adopting its values represents one of the most comprehensive Croatian public diplomacy endeavors in contemporary Europe. While carrying out these processes Croatia tackled the following issues (the 'Holy Trinity') rather successfully: international relations, foreign policy and diplomacy (in as much as it had been possible) (Andrić, Tarle and Sopta, 2012).

The Croatian geopolitical position in Southeast Europe, and the Balkan Region in particular, has largely influenced its public diplomacy and the process of incorporating EU values. Croatia reached its full administrative independence and territorial sovereignty through the Croatian War for Independence, which also shaped its relationships with the neighboring countries and the EU. Meanwhile, the process of democratization has brought plenty of new, positive elements for upgrading the relationships amongst countries of the region. The processes and activities surrounding the development of Croatian public diplomacy remain priorities within Croatian state policy and have influenced general internal and external values and

experiences during the process of accessing the EU and NATO. The period since 1990 presents an effective mix of Croatian diplomatic activity that combined classic diplomacy and traditional channels with proactive public diplomacy both at home and abroad (*ibid.*).

Public diplomacy has been supporting the processes of institutional and state development, including its own diplomatic service, and it has constantly been working on the improvement of the national economic growth, security, visibility, image and branding of Croatia. At the same time, during this period, Croatian diplomatic activity has improved the communication with the public regarding the war, the internationalization of the conflict, as well as that of the military, police and international peace operations, and development aid.

With the start of the Homeland War, the new impact of public diplomacy resulted in changes to the national diplomacy matrix: diplomacy became more open to the expert as well as to the wider public opinion, including media, at home and abroad. The new focus of its basic aims and priorities became peace and development, and bilateral and multilateral European and transatlantic relations. Croatia's non-permanent membership in the UN Security Council from 2008 until 2009 gave the country the imperative for permanent diplomatic activities and close coordination with a strong relationship between Zagreb (Ministry of Foreign Affairs) and the diplomatic network abroad (Vončina et al., 2006; Lukčić, 2015). During this period Croatian diplomacy improved the quality of its activities through analyzing, lobbying and understanding its international position and the balance of powers particularly related to the country's major opponents. It recognized the intricacies of the work during the voting cycles at the UN, and improved its credibility, synergy and cooperation with other members.

Further, the Croatian diplomatic activity was focused on communication strategies towards NATO and EU membership, thus conveying knowledge and experience about these two organizations. In addition to the impact that the Homeland War had on pushing Croatia abruptly into the unknown territory of public diplomacy, other factors have affected its progression. The effectiveness and experience of these processes can have a positive impact on the international transfer of medical knowledge and services particularly by upgrading the dissemination, application, and further linking up and the marketization of the Croatian medical expertise.

Challenges and Policy Recommendations: Public Diplomacy and Knowledge Transfer

The advancement of the international dissemination of Croatian medical expertise by the scientific community still represents a challenge for public diplomacy actions because an important element of public diplomacy is an effective and consist-

ent communication strategy, which still seems to be missing as part of an overall strategy. More specifically, by influencing domestic public opinion, any country can create prerequisites for an active societal support for those wishing to participate in international collaboration. Different communication strategies and other tools of public diplomacy can be used to support activities that will improve the international knowledge transfer in medical services. Outlined below are the different tools that can be used by any country, with some examples from Croatia.

Strategic Plan

By developing a strategic plan for public diplomacy activities, on both the national and international level, each transition country creates a mixture of mutually conditioned and interconnected actions that will result in an improved international transfer of medical expertise. The new public diplomacy concept of “logic models and output trackers” suits this strategy. It includes a limited number of types of intermediate outcomes that public diplomacy can deliver. The first, occupying the core public diplomacy area, is to change perceptions; the second is to set an agenda by reframing the way in which an issue is debated and to create pressure for change; the third is to build networks that support the delivery of that change; the fourth is the presentation of a developed capacity within organizations allowing them to understand and respond to issues, and the fifth is to change institutions by influencing policy, strategy and resource allocation within a set of organizations. These could often be initiated and supported either by government or the private sector (David, 2007).

Presentations and promotions of national and/or group values and interests, initiated by governmental and non-state actors, have shifted trends towards international cooperation and closer integration schemes. Also, the building of an efficient network of different public players is imperative for public diplomacy on all levels. For example, the Croatian public diplomacy activity should capitalize on the past medical achievements, such as the historical legacy and importance of Andrija Štampar School of Public Health, or a doctrine of health system organization during the Homeland War. Also, it should use highly valuable current achievements in forensic, sports, plastic, dental and transplantation medicine. Furthermore, a comprehensive public diplomacy strategy should include activities from the promising results in health tourism and personalized medicine, which represent a significant potential for the future international dissemination of Croatian medical expertise and ultimately for the international knowledge transfer in medical services on the global level.

A comprehensive and integrative public diplomacy strategy in the field of knowledge transfer includes various national governmental entities (ministries, agencies), as well as non-governmental organizations such as health system insti-

tutions, professional medical associations, patients' associations, medical schools, universities and scientific institutes. The continuity and sustainability of the process is the most important factor to overcome failures that could arise because of a loss of societal support, towards which its actions are directed. A targeted, long-term public diplomacy campaign is the most appropriate approach for the change of domestic public perception as well where it should influence Croatian public opinion by its contact with the public through dialogue, the transnational flow of ideas and information (Andrić, Tarle and Sopta, 2012).

Competitiveness Reforms

The 2017-2018 Global Competitiveness Report (GCR) assessed the competitiveness landscape providing insight into the drivers of productivity and prosperity (World Economic Forum, 2017). Its conclusion was that the lack of risk, with the lack of experience, and declining openness all represent threats to growth and prosperity because a competitive environment pushes forward the ability to achieve the most quality results. Monetary stimulus measures should be sustained by economic growth, but also must be accompanied by competitiveness reforms (Global Competitiveness Report 2016-2017). Projects resulting in the highest income would be the ones where there is a financial-productive positive sum relationship between partners, investors and users on an equal level.

Beside drawing from the legacy and experiences of previous and present achievements, the incentive for innovations has become especially important for finding new growth engines in the sphere of knowledge dissemination. Public diplomacy actions can support the establishment of long-term foundations on which sustainable growth can rely by working on all factors and institutions identified in the Global Competitiveness Index. These supporting activities should be focused on the creation of businesses willing and able to innovate, but also on furthering the development of sound institutions, both public and private, basic infrastructure, education and healthcare, macroeconomic stability, and well-functioning financial, labor and human capital markets. Only by integrating all these aspects can the impact of the international transfer of knowledge be fully absorbed and utilized. Examples of countries that have been able to integrate most, if not all of these aspects are Switzerland, Singapore and the United States, which remain the world's three most competitive economies according to 2017-2018 GCR. Croatia is ranked 74th on the list of 138 economies, with the Global Competitiveness Index of 4.19, which is not different from the ranking in 2017 (77th) when Croatia's Global Competitiveness Index was the same (*ibid.*). At the same time Slovenia was ranked in 48th place, while Serbia ranked 78th. Why is this so? One of the factors could be the relatively small country and economy size of Croatia where, according to the 2016 demographic report, Croatia contributes with only 0.84% (4,246,700 citizens) to

the EU's population, while the EU is itself highly populated and culturally diverse with about 510.1 million people, thus benefitting from these trends. Furthermore, the number of registered researchers per million people in Croatia was 1,646 for 2010, whilst the same average number in the EU was 3,365 per million (Eurostat, 2016), hence about half of the EU 28 average. These comparatively low numbers for Croatia represent a handicap for its national scientific power. By comparison, one of the most dynamic countries worldwide in terms of research activity is Switzerland. They invest close to 3.4 percent of its GDP (22 billion CHF) in research and development (R&D) and, since 1952, the Swiss National Science Foundation has reviewed more than 70,000 research funding applications and has enabled over 20,000 young researchers to conduct their research abroad while funded mostly by the private sector (86% and 71% respectively). Swiss researchers produce nearly 1.2 percent of all scientific papers published worldwide, putting it in 17th place in international rankings. In the 2016-2017 Global Competitiveness Report, Switzerland was ranked first for the eighth consecutive year (Swiss Confederation, 2018). If Croatia wishes to upgrade the level of its research activity, the private sector has to get involved with more funding in R&D projects, and lead their implementation, in order to produce a greater number of scientists and improve their productivity in research and the dissemination of knowledge. This is particularly important in the proverbial "Death Valley" of research, or a stage in research where basic research is traditionally funded by national public entities while the advanced research is where the private sector tends to be more involved because of lower risk and relatively high gain, particularly in the medical field.

Furthermore, an important precondition for high-quality knowledge transfer in medical services and a base from which reforms could start is the financial stability of the healthcare system. Reforms that address the financial stability and sustainability of the system would ensure that medical research professionals have fair conditions for high-quality education, work and research. The healthcare systems in most of the countries in transition suffer from the problem of non-adjusted outcomes to incomes. In other words, performance, outcomes, and meritocracy are rarely part of the scheme upon which excellence in research and health service delivery are founded. So, while public diplomacy cannot remedy certain structural problems of healthcare system financing, in Croatia it could include immediate media and communication activities to mitigate and avoid the expected problems of deficiency of medical professionals and of financial investments in the healthcare system. This is particularly important in an environment in which the media often focuses predominantly on the negative aspects, thus creating a self-fulfilling prophecy.

This can be done in open debates at national conferences and roundtables which give the opportunity for enhanced knowledge transfer in medical service and

ideas for solutions are discussed. Furthermore, a larger investment in the healthcare system can be encouraged by recurrent presentations and the marketing of successful domestic and international collaborations and projects through social and other media. Successes like those in the Croatian transplantation or forensic medicine offer good examples of such practices. Positive results stemming from actions by governmental and non-state health system actors should be supported by public diplomacy activities to raise positive public attitudes towards the national healthcare system by media promotion of their positive achievements. At the same time, actions leading to greater public awareness of the threats to the system can serve as venues for patient education and comprehension of one's own health, and its value as a lifetime investment. It should be supported by intensive public diplomacy actions through newspapers, billboards and other electronic media which provide possibilities for conveying public service announcements. That kind of health environment will give a positive feedback on the financial power of the Croatian healthcare system. Citizens will be encouraged to invest more in their own health. While their health status will have scaled up, costs for their treatment in the health system will be lower. Then, the freed resources in the health system could be invested in producing a higher standard of living for medical staff, doctors and researchers in order to reverse and prevent further their current brain drain. A financially sound climate will also positively influence the negative trends in the healthcare workforce distribution and critical shortage of healthcare service providers. This would further create a more productive environment and enhance capacity for scientific work and research in medical services and result in a higher number of clinical scientists involved in the transfer of knowledge in medical services on the national and international level. This will, over time create a high enough number of registered Croatian researchers to establish a stronger national scientific power base.

Finally, the transformation of the archaic institutional and bureaucratic culture of public healthcare officials into accountable and transparent institutions can be assisted by public diplomacy activity. By utilizing all of the available sources of communication, both traditional and from all fields of ICT public diplomacy activities can encourage and promote support for such formal and informal reforms of the bureaucracy (Andrić, Tarle and Sopta, 2012).

Health System Improvement

As innovation in medical research and knowledge is closely related to the healthcare system, its functioning and the continuing improvement of its ability to create an environment conducive to growth and learning is imperative. Where is the Croatian model of open innovation and knowledge transfer when assessing its qua-

lity? Over the last few years there have been certain improvements. Croatia spends a relatively high share of its GDP on healthcare compared to its past expenditures, but this share is still comparatively low in the European context: about 7.4 percent for 2015, while the EU average is 9.9 percent for the same year (European Commission, 2018). Recent reforms appear to have succeeded in containing the increased expenditure and even bringing about a reversal in the level of public spending on health. As part of the general decentralization policy, a small but increasing share of public spending on health is being picked up by the local government. Also, there is private spending in a range of approximately one fifth of the total health expenditure. Despite its challenges, the latest report by the European Observatory of Public Health still rates the Croatian healthcare system near the top of the “biggest bang for the buck” list (Džakula et al., 2014). Additionally, Croatia is among the top EU countries (4th) with the lowest percentage of health expenditures as part of household income thus providing good financial risk protection (WHO, 2018). Nevertheless, despite the cost reductions, the health system is still heavily burdened by arrears (Vončina et al., 2006).

At the same time the Croatian Ministry of Science set up the Croatian Research and Innovation Infrastructures Roadmap in 2014, aiming to boost scientific excellence, the culture of innovation and the application of scientific knowledge to benefit society and the lives of all citizens (MZOS, 2014). But the base of the Croatian health system, i.e. continuous medical education and funding of a health insurance system, is under a great deal of financial pressure. Namely, its weakest link is in the chain of needs for the enhancement of the international transfer of Croatian knowledge in medical services. The Croatian social health insurance system has limited sources of funding which cannot meet the predicted increase of public expenditure on healthcare and long-term care. Croatian health professionals’ earnings depend on the same modest system of funding, which has a significant impact on growing deficits in the health workforce, that is, there is an outflow of medical professionals from Croatia to other countries, as well as from the public into the private sector. In the case of Croatia, and many other transitioning countries facing similar challenges, an important but often overlooked factor for a successful recovery is the inclusion of more positive public standing towards individual investment in the national and private health insurance, as well as more willingness to help other people through the health insurance system based on solidarity. Developing a receptive public attitude towards a more proactive role of individuals in their own healthcare has been confirmed by participants’ readiness to publicly promote positive medical issues through discussions, surveys, publishing papers, etc. (Khasnabis et al., 2010). This continuous promotion has influenced public opinion and attitudes, as well as the increased recognition of Croatian medicine.

One of the achieved positive steps in the improvement of the Croatian health system is the opportunity for free (state funded) undergraduate or postgraduate training and continuous education in ICT and eLearning in health sciences in cooperation with the Croatian Medical Chamber. The difficulty in having medical ICT specialists recognized as a medical profession represents a significant challenge in this field (Eurostat, 2016). According to the WHO European Region Report – Building foundation for eHealth 2006, Croatia has developed a comprehensive health information system at the national level (*ibid.*). The ICT improvement of the Croatian health system enhances the activities of public diplomacy to more positively influence the dissemination of knowledge between ICT literate medical specialists. Amongst the most effective initiatives of public diplomacy undertaken to promote access to digitalized health contents are the tourist health information portals (*Stay healthy in Croatia – Absolute Croatia, Croatia Medical Travel, Health – Croatia medical advice*, etc.), the public health eJournal and the eDZ (a website for health professionals).

Smart Integration

The activities dedicated to the service of the national healthcare system and medical services represent some of the most important public diplomacy actions, oriented to support the gradual process of increasing capital and social trust amongst all actors within the healthcare business sector and academic institutions. The important precondition is that all parties be engaged in developing their ‘exchange’ and ‘absorptive’ capacity, by both partaking in, as well as benefitting from the mutual relationship between the private sector and academia. The Croatian scientific and research society has to make universities and public research organizations more entrepreneurial, while the government should embrace innovative businesses, enhance innovative markets, innovation hubs and networks. These activities should facilitate a smart integration of capital into this process.

The success of these supporting policies depends upon the ability of the healthcare business sector and academic institutions to collaborate within national and international technology networks and innovation clusters, and upon the mobility of researchers between the two. Roundtables, conferences and forums should gather both sides to bypass the existing gap between them. Finally, the promotion of experienced scientists with a proven track record of excellence and knowledge to advise on policy steps should form the foundation of any further policy reforms.

Finally, the Croatian government and healthcare business sector need to show more interest in supporting and promoting domestic research and in the developing analyses, studies, and assessments, and making these regularly available to the wider public.

The Public Diplomacy Network

Results from the Global Health Diplomacy Education Survey show the need to build capacity for health diplomacy by training public health professionals and diplomats respectively (WHO Bulletin, 2007). Building capacity by engaging in research, knowledge translation and diffusion for and with major global health stakeholders is expected to have a positive long-term effect on the medical sector in particular and economic growth in general.

The number of programs addressing health diplomacy around the globe in a truly integrated manner is rather low. Although the Global Health Diplomacy Education Survey is dominated by Anglo-Saxon public health diplomats, it has not been independently popularized throughout the rest of the world. The recommendations are to: 1) build a network of innovators and leaders in the field of health diplomacy, develop and establishing a hub/nodal point for global health diplomacy arrangements for an international tracking system of curricula as well as any academic and non-academic educational initiatives in the field of health diplomacy; 2) support capacity building activities for health diplomacy, especially in emerging economies and developing countries. This can be done through a cascading partnership system as developed by the Graduate Institute by multiplying existing initiatives/programs which have already integrated the components of health and diplomacy into health and involvement of the WHO Regional Offices (Kickbusch and Erk, 2008). Thus, the establishment of a formal public diplomacy network in medical research that will encourage information exchange, communication, the coordination of activities, and create a network of support for all parties involved would improve the innovation, dissemination and transfer capacities in the field of medical research. In the case of Croatia, considering funding and support, i.e. the latest available opportunities from the EU and World Bank, public diplomacy actions should actively promote funding through the Croatian Agency for Small Business and Investment (HAMAG – BICRO), the Centre for Research Development and Technological Transfer (CRDTT) (Vikić-Topić, 2015), university Technology Transfer Offices (TTOs), etc., with an emphasis on research collaboration, technology opportunities, professional training, start-ups and ventures services and consultancy in health service at different international scientific and start-up conferences with brochures, videos and internet web sites.

The Croatian Ministry of Science, the Ministry of Health, the Agency for Science and Higher Education and especially the CRDTT should coordinate information about international proposals for possible research collaboration, technology opportunities, professional training, start-ups and ventures, services and consultancy in medical services. The creation of a map of all Croatian scientists, research and technology projects that are innovative in medical services could be a valuable tool

that could be made publicly available online and would hence facilitate the integration process. Furthermore, the international mobility of healthcare workers also provides opportunities for learning and knowledge dissemination.

The newly established Centers of Research Excellence should invite, attract and involve most Croatian experts with the relevant knowledge and experience. Practical applications and actions include the sharing of lectures and best practices acquired during the EU accession, they could promote and organize open seminars, roundtables, conferences, forums, workshops, lectures and study visits promoting Croatia's interests abroad (Ostojić, Bilas and Franc, 2012). Distributing the existing and preparing all other required material, publications and documents about possible domestic and international collaboration would give support to both potential and present researchers. External ideas from users may be gathered and integrated by an organization to co-create platforms with universities and/or other companies. Croatian experts integrated in the evaluation of international projects own certain information which create value, connected to the personal experience and knowledge, or institutional capacity for the research may be distributed to other individuals or groups. Further roles and new knowledge of experienced national researchers should be presented through face-to-face communication with newcomers in scientific society. Tools for co-creation can be traditional (meetings) or developed online (platforms or chat rooms).

Other activities directed towards the general public, showing positive results of collaboration between national and foreign universities and research centers in national and international projects, should be constantly presented in the media promoting the international dissemination of medical expertise in the best possible manner. Promotion should include national TV, radio and press campaigns with information from interviews with leading experts involved in these projects.

In the field of innovations and investment in medical scientific work and research system, public diplomacy actions should be more tailored to specific features of obligations and operating conditions for the workforce in the Croatian healthcare system. For example, a greater support by HAMAG – BICRO to medical researchers in their activities, based on the better understanding of internal organizational handicaps of government funded health institutions, could advance a more practical transfer of knowledge and technological solutions from the scientific domain to business. Currently, scientists, as employees of state healthcare institutions do not have enough experience and resources for managing such economic issues, which are nonetheless crucial for the application of knowledge and transfer to market. University TTOs can serve as coordinators of these processes, as well as provide practical support through educational seminars and fellowships regarding documenting and managing the rights on and ownership of patents.

However, promotion through public diplomacy activities should not refer only to publishing exclusively positive results of projects. It should also encourage the publishing of experience gained in projects with negative or partial results, that is, learning from unsuccessful projects and ventures as a critical tool in the learning process. This kind of objective and open science promotion can provide the scientific community with encouragement to learn from mistakes and apply this knowledge in future undertakings. That serves to create a constructive environment in the Croatian research community, and to explain that processes involved in start-up companies are potentially healthy, competitive and safe ventures for all participants. Intensive use of speaking engagements, printed publications and outreach to journalists, as well as broadcast and electronic media in a campaign is necessary to encourage researchers to submit new project applications.

Finally, this process can aid in identifying the internationally relevant potential of Croatian scientific community in terms of its quality, vision and orientation in line with the objectives of the Strategy for Education, Science and Technology in the EU – Europe 2020 and the strategic needs and priorities of the Republic of Croatia.

Information Transfer Channels

The vertical and horizontal transfer of information can be successfully used in public diplomacy. Vertically, healthcare service and healthcare professionals should be close to information resources connected with the possibilities for investment in their daily practice research activities. Channels for the spreading of such information should be short and simple. Professionally outsourced supporting activities in project preparation should aid in the submission of both nationally and internationally funded projects.

Horizontally, a network of similar professional activities should be established and professional medical societies under the jurisdiction of the Croatian Medical Association should be enticed to collaborate and act in the same direction. Also, the coordination of public diplomacy activities between four university centers and their medical schools is imperative. Part of the mission should be the establishment of a new authority constituted by representatives of each university whose main mission would be to coordinate the activities and managing of joint ventures in research projects and international dissemination of medical expertise within Croatia.

All the key players in the international transfer of Croatian medical expertise have to collaborate congruently in common actions of public diplomacy and organize seminars, workshops, lectures, study visits, roundtables, conferences and forums to promote research collaboration. Such public diplomacy activity would influence the way society views the issues faced by scientists by communicating

better their work and contribution to society, and to increase their support from clinical hospitals, institutes and offices. Healthcare institutions should be incentivized to search for internal and external resources for financing their education and scientific activity, for the preparation of competitive medical project submissions, and providing and finalizing their own research activity, without any need for support.

Conclusion

To better promote the necessity of cherishing knowledge and enable its transfer and dissemination internationally, Croatia's public diplomacy effort should be focused on both a national and international audience. To do this, it has to consider different communication strategies and adapt them in order to fulfill its objective, that is, further the transfer of medical knowledge internationally.

At the very beginning it is important to win a positive response from the public, which will, in the transferring of medical expertise, based on research and innovation, enable public diplomacy activities to introduce changes and ensure compliance with EU standards. This should be followed by corrective community activities applied to the method of problem solving, the building of a critical mass and a network of actors participating in the transfer of information. When the capacity to provide the transfer and dissemination of Croatian expertise has been presented to the national and international community, the preliminary conditions will be put in place to implement corrections in the national strategy on the issue of organization, financing and encouraging collaboration between the academia and healthcare business. This shall, in turn, encourage the further development of knowledge and make it an important export product.

An important factor in the success of public diplomacy activities, both internationally and in Croatia, is closely and inevitably linked to continuous adjustments to new, more modern ICT options, internet communication and the utilization of diverse media outlets. Thus, using the internet and social media it is easier to target the information towards particular groups. By applying the same strategy to disseminate the medical expertise internationally and achieve its primary goal, i.e. to gain a positive public response and trust of users, public diplomacy is also likely to gain the attention and collaboration of all participants within the healthcare system, academia, healthcare business sector and others contributing through research and innovation. As part of its approach and strategy, public diplomacy should promote positive results of existing collaboration by continuously emphasizing the high quality of Croatian medical expertise, a wide range of available, high quality medical healthcare experts, researchers and research centers and their experience in research and innovation open to international cooperation.

It is only with a well-developed strategy and implementation of reforms, together with the improvement of the national healthcare system, that the necessary power for the success of these actions will be created. Furthermore, without a well-constructed network of active promoters and well-positioned public diplomacy activity, the resulting feedback will not be received, neither at the national nor at the international level of medical expertise transfer. Despite all these challenges the international dissemination of Croatian medical expertise has an optimistic future primarily based on the high quality and potential of Croatian human resources in the domestic health system, national scientific community and the healthcare business sector. An improvement in public diplomacy activity is possible, following the motions of the European network of knowledge transfer in health and the EU framework program based on research and innovation. It demands actions to correct the sensitivity and responsibility of the national government and its structures to act progressively in practice by implementing needed changes and by including the main actors, the health workforce, the scientific community and the health business sector in order to recognize the improvement of their mutual relationships as an imperative of the highest national interest.

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