

An International Comparison of Healthcare Technology Assessment Usage

Introduction

Since the United States of America established the first Office of Technology Assessment in 1972, there has been an ever growing accumulation of academic research addressing the infinite demand and the finite supply of healthcare. Although no nation is immune from the challenge of providing quality healthcare under intense resource limitations, different economic indicators and health systems affect the specifics of that challenge. While some nations struggle to address inequity and basic healthcare delivery, others are inundated with new, expensive and often complex technologies that may or may not bring added value to the health of the public. Health Technology Assessment has evolved as health policy makers' need for decision support has become more and more urgent.

Although there are several definitions of health technology assessment, the World Health Organization's definitions are commonly used (World Health Organization, 2015):

Health Technology is *“the application of organized knowledge and skills in the form of medicines, medical devices, vaccines, procedures and systems developed to solve a health problem and improve quality of life.”*

Health technology assessment (HTA) refers to the systematic evaluation of properties, effects, and/or impacts of health technology. It is a multidisciplinary process to evaluate the social, economic, organizational and ethical issues of a health intervention or health technology. The main purpose of conducting an assessment is to inform a policy decision making”

This paper offers a comparison of the usage of Health Technology Assessment by policy makers who are faced with difficult decisions regarding how limited resources should be allocated to best improve the health of the general population they serve. Countries that offer wide geographic and economic representations were selected. Figure 1 illustrates how these countries compare to one another in terms of total health spending per person and total health spending as a percentage of total Gross Domestic

Product (GDP). Figure 2 illustrates how these countries compare to one another in terms of total government spending per person and life expectancy.

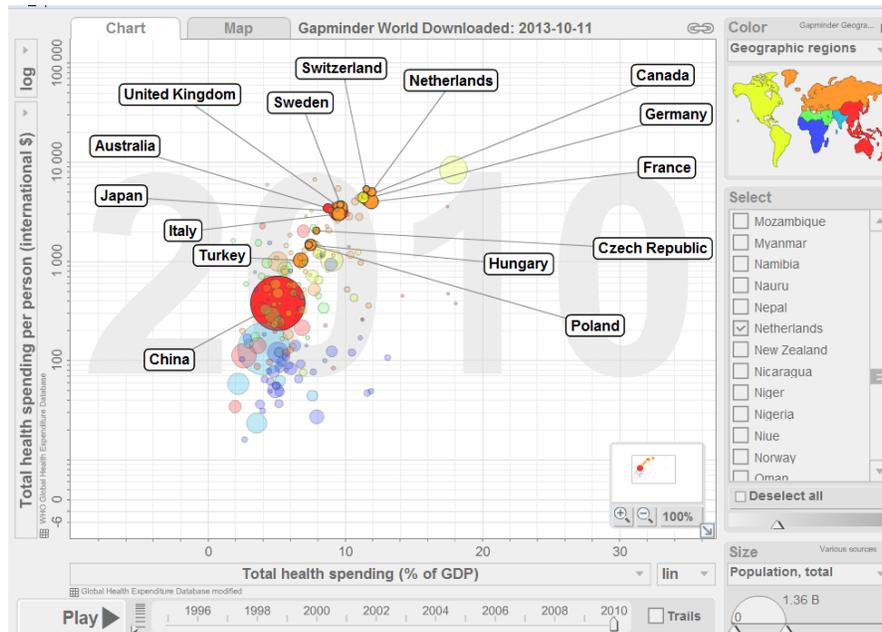


Figure 1: Comparison of Total Health Spending Per Person and Total Health, (Gapminder World, 2013)

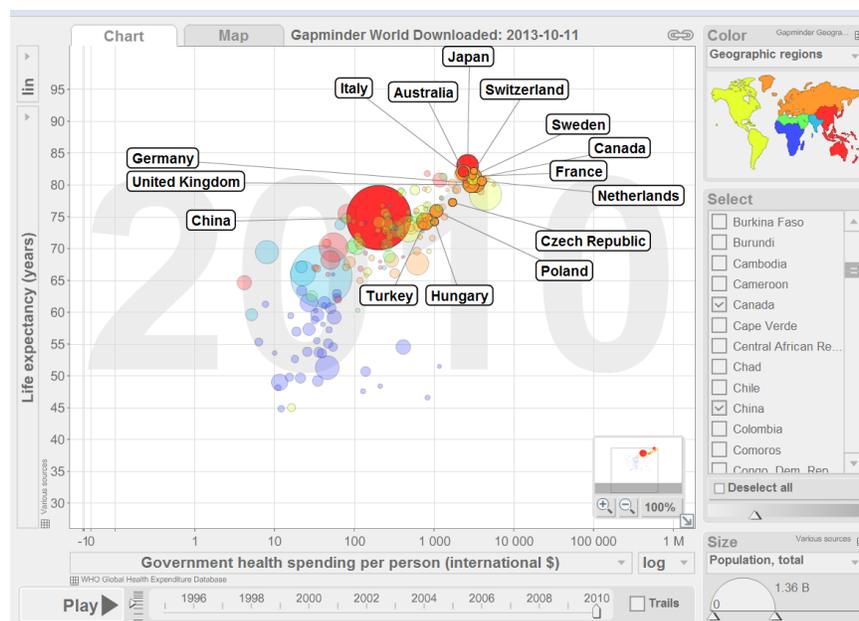


Figure 2: Comparison of Government Health Spending Per Person and Life Expectancy, (Gapminder World, 2013)

These figures illustrate that while having more financial resources available for health often leads to better health (in this case longer life expectancy), Japan's experience shows that the longest life expectancy does not come with the highest per capita health expenditures. Japan spent 64% of what the Netherlands spent on health per person and yet Japan's life expectancy is two years longer. Turkey spent 2.7 times more than China per person, but achieved an average life expectancy of 74, a year less than China. These examples illustrate the need to develop healthcare policy based on relevant evidence (World Health Organization, 2013).

It is important to state that the countries included in this study are not the only countries to use HTA. In fact, this discipline is growing in popularity as new countries begin to explore HTA and how it can be used to inform health policy. There are also a number of international communities that are working to share experiences and develop models and techniques that can be transferred or adapted by countries around the world. This paper will begin by introducing these international communities and then proceed to describe each country's approach to HTA usage with the intent to better understand how and why these approaches were developed.

European Commission supported HTA Collaboration Projects

The European Union (EU) began funding projects to develop international collaboration on HTA since the 1990's beginning with the EUR-ASSESS Project and continuing with ECHTA/ECAHI, Advance HTA, EUnetHTA.

EUR-ASSESS (1994-1997)

This project was led by the Netherlands and was the start to collaborating on HTA activities in Europe. Researchers from Sweden, Switzerland, Spain, the United Kingdom, Italy, and France conducted a thorough literature review of organizations that were conducting HTA work to identify how they decided which technologies to review, or how they prioritized potential HTA topics. An important product of the research was the publication of a priority setting tool kit that guided HTA agencies to prioritize according to cost-benefit analyses (Banta H. , 1997).

HTA Europe Project (1997-1998)

This project aimed to develop, strengthen and connect institutions throughout Europe that were actively conducting or could conduct HTA. The results of the project were provided as guidance to the European Commission (Banta H. , 1998).

ECHTA/ECAHI (2000-2002)

The European Collaboration for Health Technology Assessment/European Collaboration for Health Interventions was a continuation of EUR-ASSESS. All of the member states and observers from eight other countries worked in six research groups that tried to solve issues common to HTA agencies in the European Union. It was focused on public sector HTA agencies and urged the establishment of a single sustainable coordinating organization that could guide the European Union and its individual members states toward using HTA to inform the planning, delivery and monitoring of health care (Jonsson, 2002).

Advance HTA (2007-2013)

Advance HTA was led by the London School of Economics in the United Kingdom and included partner organizations from Italy, Spain, Slovenia, Germany, the United States, Belgium, France, Poland, and Sweden. This project focused on developing the methodology used in HTA around the world by bringing members of the international HTA community together to debate the various methodologies used in assessing value for money, rare diseases and orphan drugs, quality of life measurement, and medical devices (Advance HTA).

EUnetHTA (2006-2008;2009;2010-2012;2012-2015)

The European Network for HTA Project was tasked with developing the organization recommended by ECHTA/ECAHI. It is led by Denmark and has so far been funded by the European Commission under four separate and consecutive projects. EUnetHTA has developed an HTA Core Model® that is being tested and developed through several international joint HTA projects that are archived and shared on the POP Database and the EVIDENT Database (EUnetHTA).

International HTA Communities

ISTAHC, The International Society of Technology Assessment in Health Care, was established in 1985 which held international annual conferences where researchers and policy makers could discuss and share their experiences. It was closed in 2002 due to financial difficulties (Banta H. , 2009).

HTAi, Health Technology Assessment International, was established in 2003 to replace ISTAHC and continue the networking and sharing required by the growing HTA community. It currently has organizational and individual members from more than 65 countries including Kazakhstan, Colombia, United Arab Emirates, Lithuania, Malaysia, and the United States of America. HTAi is different from the other international communities in that it welcomes all stakeholders including for-profit organizations and pharmaceutical and medical equipment manufacturers (HTAi).

INAHTA, The International Network of Agencies for Health Technology Assessment, is a non-profit organization that was established in 1993. INAHTA holds an annual conference that is scheduled back-

to-back with the annual HTAi conference. Unlike HTAi, INAHTA members are all public and private agencies that produce HTA reports. It currently has 55 members that include agencies in Poland, China, Mexico, Brazil, South Africa, Chile, Uruguay, India, Korea, Kazakhstan, and Malaysia (INAHTA).

EUnetHTA currently has 51 Partner and 18 Collaborating Partner agencies from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom. Members are supported by an intranet that includes tools and bulletin boards to network and share work being conducted in individual members states. Several joint HTA studies are currently underway (EUnetHTA).

The European Commission HTA Network was established in 2013 and includes a representative from each of the member states. As stated on the network website, “According to the Implementing Decision, the HTA Network “shall be supported by a scientific and technical cooperation mechanism”. This function will be performed by Joint Action **EUnetHTA** until the end of 2015. (European Commission).”

HTAsiaLink is younger than the other organizations and was established in 2011 under the leadership of Thailand, Taiwan and Korea. The need for an Asian focused HTA community was based on the fact that Asia has different cultural attitudes regarding the value of health than Europe. One of the first joint activities was a symposium addressing an Asian value index for Quality Adjusted Life Year (QALY). It currently has 15 members representing Australia, the Philippines, Malaysia, Thailand, Vietnam, Bhutan, Taiwan, Korea and China (HTAsiaLink).

RedETSA, Red Andina de Evaluacion de Tecnologias Sanitarias, is another geographically focused community. RedETSA was established in 2011 based on an agreement that came out of a regional HTAi meeting in 2010. It is being led by the World Health Organization’s Pan American Health Organization (PAHO) The organization currently has 25 members from Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Ecuador, Mexico, Paraguay, Peru, and Uruguay. The community’s first activities centered on conducting a current situational analysis and developing a tool to guide member countries through decision-making (PAHO).

HTA usage around the world

While international communities debate the ethics, methodologies and dissemination of HTA, individual countries have taken different paths to promoting and using HTA for health policy development. This section describes the development of HTA usage in 15 countries in Europe, the Americas, and Asia.

Australia

Australia has achieved a mature level of HTA usage when compared to most other countries. As early as the 1970's, Australia had a program to assess pharmaceuticals for safety and efficacy that included some of the components of modern HTA. A variety of HTA and monitoring activities are conducted within the routine work of three government health agencies: the Pharmaceutical Benefits Scheme (PBS), the Therapeutic Goods Administration (TGA) and the Australian Department of Health and Ageing (DOHA) (Whitty, 2015). In 1982, the National Health Technology Advisory Panel (NHTAP) was established. It included the perspectives of a broad range of health sector stakeholders including medical schools. A Superspecialty Services Subcommittee (SSS) was also established at this time to develop guidelines on how highly specialized resources should be used. In 1984, the universal health care program was established and it was soon recognized that HTA could be useful in efforts to make healthcare expenditures more efficient, so in 1990, the NHTAP and the SSS were combined to allow for the establishment of the Australian Health Technology Advisory Committee (AHTAC) which could more directly advise policy makers on issues regarding health technology. In 1998, AHTAC was replaced by the Medicare Services Advisory Committee (MSAC) to streamline policy development around new technology licensing and reimbursement. This further strengthened the use of HTA in policy development. The MSAC is funded by DOHA and makes recommendations (not decisions) regarding the safety and clinical/cost effectiveness of health technologies. Evaluations are outsourced by MSAC to external organizations, often within universities; because it was determined that HTA conducted within the Ministry was not sustainable due to lack of human resources with the skills and knowledge needed to conduct high quality HTA reports. In 2008, DOHA stated in its 123 point reform strategy that the publically funded health system needed to “deliver the best health outcomes, while reflecting the values and priorities of the community” which pushed MSAC to expand the scope of HTA work beyond safety and clinical/cost effectiveness to include “clinical, economic and community perspectives through vehicles like citizen juries.” As a result, patients are now included as members of HTA assessment committees. Recent development of HTA in Australia has focused on improving transparency and accountability in the priority setting and decision making processes (Whitty, 2015).

MSAC and PBAC are members of HTAi. Other Australian organizations are members of INAHTA: ASERNIP-S (The Australian Safety and Efficacy Register of New Interventional Procedures -Surgical,

AUSTRALIA, HealthPACT (The Health Policy Advisory Committee on Technology), and NHMRC CTC – NHMRC (Clinical Trials Centre). ASERNIP-S and HealthPACT are also members of HTAsiaLink.

Canada

Canada has had decentralized universal health care since 1984 which allows each of the 13 provinces to determine for themselves how to manage and deliver health care services in order to meet national basic standards of coverage. As such, HTA developed at the provincial (meso) level instead of at the national (macro) level where most countries started using HTA. Quebec was the first province to establish what is now called the Agence des technologies et de modes intervention en sante (AETMIS) in 1989. It was followed by the Alberta Heritage Foundation for Medical Research (AHFMR) and Ontario's Medical Advisory Secretariat. As other provinces started to take interest, it was realized that by pooling resources across provinces, they could avoid duplication, improve productivity, and more quickly develop technical expertise. Although some HTA work continues to be conducted at the meso level today, in 2006, the Canadian Agency for Drugs and Technologies in Health (CADTH) was established at the national level. It is funded by provincial, territorial and federal budgets and although it is national, it remains independent. It is responsible for providing objective and evidence based assessments that analyze the clinical and cost implications of new and existing health technologies and has recently begun systematically soliciting patient viewpoints in order to strengthen the societal perspective. CADTH makes recommendations that are then used to make independent policy decisions at each of the provinces. CADTH conducts some HTA work using its own staff, but increasingly outsources work to public and private research organizations. Recent development work has focused on establishing criteria and strict review processes for HTA reports in order to ensure that they are scientific and credible and on measuring the impact of HTA reports on policy decisions (D., 2009). CADTH has an annual budget of 16.6 million Euro (Wilsdon, 2014).

CADTH is a member of INAHTA along with HQO (Evidence Development and Standards Branch), IHE (Institute of Health Economics), and INESS (Institut national d'excellence en sante et en services). CADTH is also a member of HTAi along with IHE, INESS and the University of Calgary.

China

China does not have a universal health care system, but the Healthy China 2020 reform package aims to provide universal health care access and treatment throughout China by the year 2020. The earliest HTA agencies were established by the Ministry of Health's Department of Science and Education with World Bank support in four universities in the 1990's. Each of the four centers had a different focus: economic evaluation in Shanghai, medical equipment HTA in Hangzhou, ethics evaluation in Beijing and evidence-based medicine in Chengdu. One of these, the CNHDRC (China National Health Development Research Center), was established in 1991 (NHDRC). The first HTA report was published in 1997. HTA work is currently commissioned and used by several government organizations: The State Food and Drug

Administration (SFDA), the Ministry of Labour and Social Security (MoLSS) and the Ministry of Health (Chen, 2009). HTA work is focused on clinical and cost benefit analysis only. According to Liu, “Despite their efforts, application of HTA findings to policymaking is not yet widespread and the integration of HTA in the policy-making processes is still in its infancy in China” (Liu, 2014). Current HTA development focus is on promoting HTA within policy making organizations and on learning from other countries’ experiences through organizations like INAHTA.

The China National Health Development Research Center (CNHDRC) is a member of HTAi and HTAsiaLink.

Czech Republic

The Czech Republic is in the early stages of using HTA without an official HTA agency or officially accepted guidelines. However, there is farmacoconomics and outcomes research non-profit association called CFES that has published a document entitled “Guidelines for conducting health economic analyses” which meet many of the principles promoted by organizations like INAHTA and HTAi. The Ministry of Health has taken an interest in HTA and has Work in the Czech Republic has focused on drugs and reimbursement policies related to drugs (Gulacsi, 2012).

The Czech Ministry of Health is a member of EUnetHTA.

France

HAS (Haute Autorite de Sante) was established in 2005 and is often compared to NICE in England although they are quite different from one another. HAS is an independent government organization and its main task is to improve the quality of care for patients. To achieve this mission, HAS has many different divisions that conduct HTA (and other activities) that feed into the national health policy development and reimbursement decision making bodies. HAS is the only public HTA institution in France and it assesses all types of new and existing health technologies for efficiency, organization of care and social values (Rochaix, 2012). HAS has received some criticism for focusing only on clinical effectiveness and not on cost effectiveness (HAS does not conduct economic analysis in HTA assessments) and for not including patients’ viewpoints in HTA studies (Wilsdon, 2014). HAS has an annual budget of 62.2 million Euro per year, 2.6 million Euros of this budget is spent on drug- related HTA work (Wilsdon, 2014).

HAS is member of EUnetHTA, INAHTA, and HTAi.

CEDIT (Comité d’ Evaluation et de Diffusion des Innovations Technologiques) is a member of INAHTA.

Germany

The primary HTA agency in Germany, IQWiG, was established in 2004 to assess the clinical effectiveness of pharmaceuticals, but its scope was later expanded in 2007 to include all health technologies and to add cost effectiveness analysis. Germany's system is unique, because it did not look to other countries for their experience and models, but rather developed their own model for HTA which is referred to as the efficiency frontier (Riedel, 2013). The efficiency frontier addresses patient-relevant trial outcomes like mortality, morbidity, quality of life common to many other countries' HTA models, but it also includes an assessment of effort related to the disease or intervention and of patient satisfaction. It is unique in that it demonstrates the comparative efficiency of all relevant technologies in a way that the decisions can be made without applying a universal threshold (Caro, 2010). In 2011, IQWiG published their methodology which revealed that patients do not only have a voting membership in the appraisal committee but are also included in the development of the HTA protocol. This is the most advanced level of patient inclusion in HTA studies. Improvement opportunities for IQWiG are focused mainly on impact analysis. IQWiG work is commissioned by the GB-A (The Federal Joint Committee) which makes reimbursement decisions for the national association of social and health insurance funds (Caro, 2010). GB-A's annual budget is 30 million Euros (Wilsdon, 2014).

IQWiG is a member of HTAi, INAHTA, and EUnetHTA. GB-A and DIMDI (The German Institute for Medical Documentation and Information) are also members of EUnetHTA and INAHTA. The University of Erlangen-Nuremberg is also a member of EUnetHTA.

Hungary

In 2004, the Transparency Secretariat (TS) was established within the National Health Insurance Fund Administration and the National Institute for Strategic Health Research (NISHR) was established within the Ministry of Health. TS was responsible for clinical/cost effectiveness analyses for reimbursement policies while the NISHR was tasked with more general policy support in the areas of medical informatics and information policy, health economics, health services research and HTA. The HTA department was named the Office of HTA (OHTA), but is now the Technology Appraisal Head Department (TAHD or GYEMSZI in Hungarian) and began its work by developing a framework for HTA, but has since began to conduct HTA studies and submit them directly to the decision making body for pharmaceutical reimbursement decisions (Gulacsi, 2012).

The National Institute of Pharmacy and Nutrition is a member of EUnetHTA.

Italy

Italy has had a regionally based universal health care system since 1978 and so today, each of the regions has developed a slightly different approach. The umbrella organization, the National Institute of Health (NIH), sets general goals and principles, but the regions are authorized to implement those goals and principles as they see fit. In the 1980's, the NIH began conducting HTA studies to look at very expensive

technologies and safety issues (Favaretti, 2009), but unlike most other countries, Italy's HTA movement started in hospitals, particularly large regional hospitals that used HTA to make evidence-based decisions. Universities were active in offering training and the first HTA report to be published came from a university hospital in Emilia Romagna. In 2002, the NIH began funding HTA research and in 2003, the Italian Health Technology Assessment Network (known as SIHTA) was established to further promote HTA use and to share experiences across the regions. Italy is an interesting comparison to Canada in that it is maintaining its regional HTA development, while Canada decided to pool resources. The Italian Medicines Agency (AIFA) is the government organization that provides regulatory approval and pricing decisions at the national level and offers recommendations for reimbursement decisions made at the regional level. The AIFA's pharmacoeconomic focus is limited to clinical/cost effectiveness analysis for drugs. The AIFA is criticized for not being transparent or inclusive of stakeholders because societal aspects are not given enough importance (Wilsdon, 2014).

AIFA and the National Regional Health Authority (AGENAS) are members of HTAi and EUnetHTA. The HTA unit of A. Gemelli Teaching Hospital is a member of INAHTA and EUnetHTA. The University of Roma Tor Vergata, and the Emilia Romagna, del Veneto, and Agenzia regional health authorities are members of EUnetHTA.

Japan

Japan does not yet have a formal HTA policy or agency. Drug companies have been required to submit clinical and cost effectiveness data when applying for licensing, but there is no systematic approach to evaluating applications. In 2011, the MHLW announced that policy making decisions and reimbursement decisions would be based on cost-effectiveness analysis starting in 2014, but this has been postponed to 2016 (Kennedy-Martin, 2014). The postponement may have been caused by ongoing debate about where in the Japanese governance system HTA should reside and what its scope should be (Blanchard, 2012). As discussed earlier in this paper, Japan has a very different position in the world with the world's longest life expectancy and the world's largest elderly population as a percentage of total population, but Japan has the fourth highest pharmaceutical expenditures per capita (World Health Organization, 2013).

Japan does not yet have any organizations that are members of the international HTA communities.

Netherlands

The Netherlands has been using HTA for policy development since the 1980's and has had universal health care since 2006. In 2014, the National Health Care Insurance Board (CVZ) became the National Health Care Institute (ZN) and is now charged with advising the Ministry of Health, Welfare and Sports on what should be included in the universal health care policy. The Netherlands' first HTA work was focused on very expensive new technologies and the "Dunning Funnel" was adopted to determine what should and what should not be included in the universal health care system. The Dunning Funnel

requires that the technology should be necessary, effective, cost-effective, and affordable by the patients that will use it, although published HTA reports consistently include societal elements and patients are given opportunities to comment on completed assessments. Overall, the HTA system in the Netherlands is quite mature, with opportunities for development focused on timeliness, inclusion of all stakeholders, and impact analysis (Franken, 2014), (Wilsdon, 2014). In 2013, the CVZ had an annual budget of 54.1 million Euro, with 2.3 million Euro set aside for research (Wilsdon, 2014).

The ZN is a member of HTAi, INAHTA and EUnetHTA. The Netherlands Organization for Health Research and Development (ZonMw) is a member of INAHTA.

Poland

In 2005, AOTM, the Agency for Polish Health Technology Assessment was established to advise the Ministry of Health on technology issues for reimbursement policy decisions. In 2009, it was granted independent status but remained supervised by the Ministry of Health. This decision made AOTM responsible for its own budgeting and revenue, so manufacturer pay AOTM to review their products. This obviously may create some incentive for a positive result, so a Transparency Council was established with 20 members appointed by the Ministry of Health and all of the Council's meeting minutes are published online along with all documents reviewed. AOTM has published several versions of a guideline with standards for preparing HTAs. The HTA reports produced by AOTM are actively used in decisions regarding reimbursement of new and existing pharmaceuticals and devices. HTA focuses on clinical and cost benefit analysis and social aspects. Patients are given opportunities to comment on completed assessments. AOTM has an annual budget of 4.5 million Euro (Wilsdon, 2014). Poland's HTA usage is seen as the most mature HTA usage in Eastern Europe (Gulacsi, 2012), but development is focused on transparency, inclusion of all stakeholders, and impact analysis (Wilsdon, 2014).

AOTM is a member of EUnetHTA, HTAi, and INAHTA.

Sweden

Sweden, like Italy and Canada, has a highly decentralized health care system with universal health care. There are four national agencies that conduct HTA in Sweden: The Medical Products Agency (MPA) which licenses drugs, the Dental and Pharmaceutical Benefits Board (TLV) which decides which benefits should be included in the universal health plan, the National Board of Health and Welfare (NBHW) which provides national guidance, evaluation and supervision, and the Swedish Council on Technology Assessment in Health Care (SBU) which conducts HTA and systematic literature reviews on commission from the NBHW. SBU is the oldest agency in Sweden and perhaps in the world as it was established in 1987. It is an independent government agency with an annual budget of 8 million Euros and it has an advisory role (Rosen, 2013). TLV has an annual budget of 4.1 million Euros (Wilsdon, 2014).

Sweden differs from other countries in its HTA approach in that decision making criteria are decidedly social: Human value (respect for equality), Need and Solidarity (those in greatest need are given priority) and Cost-Effectiveness (from a societal perspective) (Arnberg, 2013).

Sweden is the world leader in conducting research to determine the impact of HTA work. In 2011, SBU conducted a survey of more than 1100 health professionals and 80% said they have had practical use of SBU HTA reports, but SBU is also interested in measuring HTA impact on behavior of patients and providers. The results of these studies are published in full on SBU's website (Rosen, 2013).

SBU is a member of HTAi, INAHTA, and EUnetHTA. TLV is a member of EUnetHTA.

Switzerland

The Swiss Federal Office of Public Health (SFOPH) and the Swiss Federal Office of Social Security (SFOSS) have been generating HTA for decision making purposes using HTA principles since 1984. Switzerland was active in ISTAHC from the beginning. In 1992, the Swiss Center for Technology Assessment (TA-SWOSS) was established to analyze new technologies and offer advice to SFOSS. In 1994, The Federal Law of Sickness Funds said that “every procedure covered by social security has to be effective, appropriate, and efficient” (Koch, 2009). In 2004, all HTA activities were moved from the SFOSS to the SFOPH. Overall, there is no single approach or framework for HTA in Switzerland. The SFOPH is focused on new technologies from the perspective of efficacy and cost-effectiveness, but this is mostly for drugs. Improvement opportunities lie in separating assessment and decision making which are currently not clearly defined and promoting the use of HTA for policy decisions. Promotion has been added by the establishment of the Swiss Network for Health Technology Assessment (SNHTA) in 1999. Its members include universities, hospitals and the Swiss Medical Association and it is responsible for coordinating and promoting HTA (SNHTA).

Turkey

Turkey began exploring HTA at a national level in 2012 with a cooperative initiative between the Ministry of Health and England's NICE. The cooperation focused on developing evidence-informed guidance for elective c-section deliveries, building HTA capacity within the Ministry and evaluating the family physician scheme within the context of universal health care. In 2013, the Ministry of Health (MoH) and the Ministry of Labor's Social Security Institute (SSI) separately and independently established HTA departments. The Ministry of Health's office was placed within the Health Research General Directorate (SAGEM). To date, the office has published four HTA reports. The Social Security Institute's office was established under the General Health Insurance General Directorate. It has not produced any HTA

reports to date, but successfully completed two initiatives related to HTA use in approving drugs for licensing decisions made by the MoH and reimbursement decisions made by the SSI. The projects involved revising the process for drug applications and review to include HTA principles as well as capacity building training for the staff of decision making bodies within the MoH, the SSI, Treasury Department, Turkish Pharmaceutical and Medical Devices Commission, the Ministry of Economics, and the Ministry of Development. Situation analyses concluded that Turkey's biggest barriers to HTA usage are poor cooperation among HTA stakeholders, restricted access to clinical data, a lack of technical capacity on HTA, and a lack of awareness of how HTA can support decision making at the policy level, and nonexistent funding specified for the research of HTA (Kahveci, 2008), (Ozturk, 2014), (Şener, 2014). The recent approval of legislation in 2014 to establish a national health sciences institute under the MoH is expected to lead to a national governmental but independent HTA agency.

SAGEM is a member of EUnetHTA along with TÜBİTAK TÜSSİDE (The National Science And Technology Council's Management Sciences Institute) and KDTD (The Turkish Evidence Based Medicine Association).

United Kingdom

The United Kingdom has several national HTA organizations, but England's National Institute for Health and Clinical Excellence (NICE) has emerged as a global leader in HTA and is more widely known than the Scottish Medicines Consortium (SMC) or the All Wales Medicines Strategy Group (AWMSG).

NICE is an independent agency that began as a government organization in 1991 as the NHS R&D programme, but later became an independent non-profit organization funded by government commissions by the National Health Service (NHS) in 1999. NICE, in turn, commissions HTA projects to established groups who prepare HTA reports for the Technology Appraisal Committee which is the decision-making authority for new health technologies in England. NICE spends 10.5 million Euro per year on HTA appraisals that focus on clinical/cost effectiveness, budget impact, and geographic inequalities. In addition to HTA appraisals, NICE develops clinical and public health guidance documents which are published on its website in several versions with various levels of detail for different audiences. The NICE methodology for HTA has been documented in detail and includes all stakeholders. NICE has arguably been a world-leader in considering social values in their HTA processes, through establishment of a Citizens' Council, based on a similar approach to that used in a Citizens' Jury (Whitty, 2015). Although patients do not have a vote in England, they are included in the HTA committee. The transparency of NICE's work is also seen as a best practice in HTA communities. Improvement efforts and criticisms focus on the influence that the NHS has over NICE appraisals. Even though NICE is structurally independent, it is sometimes put in a political position, especially when the NICE recommendation is against a particular technology. Although NICE guidance documents are binding in

the NHS and hospitals must implement them in 3 months, implementation of the NICE guidelines has been found to be inconsistent across the NHS (Drummond, 2005).

NICE is a member of HTAi and EUnetHTA. NHS Lothian in Scotland is a member of EUnetHTA and INAHTA. The NIHR (The National Institute for Health Research) is a member of INAHTA.

HTA around the World

HTA is being adopted around the world by more countries every year as healthcare expenditures and demand for healthcare services force policy makers to make difficult decisions. Although the impact of HTA reporting on healthcare outcomes is only beginning to be measured, it has provided some structure and methodology to policy making that is preferred over the alternative dependence on experience and political inclinations. In this review of 15 countries, almost all started using HTA as tool to evaluate the safety and efficacy of drugs for licensing. The second step was to add cost-effectiveness to the analysis for reimbursement decision support. Many countries, like Germany, Switzerland, and Hungary have stayed at this level, but others like Sweden, the Netherlands, and England, have evolved to include more societal aspects like patient satisfaction, societal burden of disease, and social issues and to widen the scope of HTA studies to include non-pharmaceutical technologies. We have seen that most HTA agencies produce evidence assessments to advise policy and/or decision makers, but that some, like NICE in England or the TLV in Sweden, actually make binding decisions.

Key Success Factors for HTA Programs

Upon reviewing the literature regarding the various HTA models programs around the world, key success factors emerge in line with Drummond's key principles for the improved conduct of health technology assessments for resource allocation decisions as outlined in Figure 3 (Drummond, 2008).

- Principle 1: The Goal and Scope of the HTA Should Be Explicit and Relevant to Its Use
- Principle 2: HTA Should Be an Unbiased and Transparent Exercise
- Principle 3: HTA Should Include All Relevant Technologies
- Principle 4: A Clear System for Setting Priorities for HTA Should Exist
- Principle 5: HTA Should Incorporate Appropriate Methods for Assessing Costs and Benefits
- Principle 6: HTAs Should Consider a Wide Range of Evidence and Outcomes
- Principle 7: A Full Societal Perspective Should Be Considered When Undertaking HTAs
- Principle 8: HTAs Should Explicitly Characterize Uncertainty Surrounding Estimates
- Principle 9: HTAs Should Consider and Address Issues of Generalizability and Transferability
- Principle 10: Those Conducting HTAs Should Actively Engage All Key Stakeholder Groups
- Principle 11: Those Undertaking HTAs Should Actively Seek All Available Data
- Principle 12: The Implementation of HTA Findings Needs to Be Monitored
- Principle 13: HTA Should Be Timely
- Principle 14: HTA Findings Need to Be Communicated Appropriately to Different Decision Makers

Figure 3: Principles for the improved conduct of HTA (Drummond, 2008)

Conclusion

As the paths of 15 countries have shown, it is difficult to compare HTA systems internationally because they have developed differently. For this reason, it is also difficult to transfer one country's system to another country. International HTA communities like EUnetHTA continue to work on developing methodologies and tools that can be applied internationally so that comparisons and technology/knowledge transfers can be used to learn and develop HTA further. Although comparisons may be difficult, some common issues that HTA agencies face around the world have emerged out of this analysis. Many of these issues have been identified as key success factors (Drummond, Key principles for the improved conduct of health technology assessments for resource allocation decisions, 2008). In order for HTA work product to be used by policy and decision makers, it must be credible. Transparency in the production of HTA is very important, but it is more important that there be transparency in how policies and decisions are made using (or not using) HTA reports. Independence is an important factor in how well HTA agencies can establish themselves as impartial scientific bodies. Policy development that is based on political or populist ideals may be threatened by HTA and HTA is likewise threatened by political influence on its work. Finally, national budgets must include funding for HTA as an investment in a higher quality and more efficient healthcare system.

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