ARTICLES/ARTÍCULOS

The role of regional health diplomacy on data sharing

The SADC and UNASUR cases

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Abstract: Health governance has become multi-layered as the combined result of decentralization, regional integration and the emergence of new actors nationally and internationally. Whereas this has enhanced the installed capacity for health response worldwide, this complexity also poses serious challenges for health governance, health diplomacy and health policy-making. This article focuses on one of these challenges, namely the organization of statistical information flows at and between governance levels, and the emerging role that regional organizations play therein. Regional to national-level data flows are analyzed with the use of two case studies focusing on UNASUR (Bolivia and Paraguay) and SADC (Swaziland and Zambia). The results of the analysis lead to several policy recommendations at the regional and national levels.

Keywords: data sharing, regional health diplomacy, regional organizations, SADC, UNASUR.

A fundamental shift in global health has taken place in the past decades. A multiplicity of actors has emerged in health response, not only in terms of international organizations but also in terms of new funding bodies and donors whose participation in the global health field has changed the health system landscape (Taskforce on Health Systems Research, 2004). At the same time, regional (supra-national) bodies are taking on a growing role in health data sharing partly due to their interest in addressing cross-border health risks. This complexity is compounded by the multi-layered nature of national health systems, which have had to respond to processes of decentralization and devolution. Due to the complexity of global health governance, which is constantly adapting to a growing number of stakeholders and their evolving relationships, and the

increasing criticism on the World Health Organization (WHO) and other global agencies in steering the health response, there have been increasing calls for institutions that can broker the relationship between global organizations and countries, as well as between state and non-state stakeholders (Ottersen et al., 2014).

Regional bodies' involvement in health is not something new, but their level of involvement has varied significantly throughout time. Their increasing influence on global health policy-making has been recognized recently, especially since these are institutions that were not originally created with a health mandate (United Nations, 2013). The European Union (EU), for example, is widely involved in health, focusing on health within the EU and on its interaction with other countries outside of it. While other regional bodies have centered their work on the traditionally relevant areas of trade, economic and migration issues and do not see health as a policy priority, recently the Southern African Development Community (SADC) and the Union of South American States (UNASUR) have increased their involvement in health activities, considering health a driver toward other social goals (Amaya, Rollet, & Kingah., 2015).

The health response in every country is contingent on the production and implementation of policies that are usually decided at the higher political levels of the health system, according to how the health system is organized. These policies are decided based on understandings and constructions of the causes of ill health and poverty, resources available, disease burden and local needs (Levine & What Works Working Group, 2004). The use of evidence-based decision-making that also reflects best practices has indeed been seen as a characteristic of well-functioning health systems (Kuruvilla et al., 2014). However, policies have also been found to be influenced by politics, public pressure, vested interests and in some cases, corruption (Kapiriri, Norheim, & Martin, 2005).

The process of forming policies is highly contingent on the availability of data to inform the decisions that are made. At the national level, data is collected, processed, reported and used with the support of national health information systems, which collect this data through a variety of methods, such as health facility data, administrative returns, household surveys, censuses, vital registration, national health accounts and health data (Carraro et al., 2003). Although the majority of this data is generated at the local or community level and then reported to the higher levels, it is rarely fed back to the primary level of care (Abouzahr & Boerma, 2005).

Data sharing is important because it allows actors at all levels, whether they are donors or physicians implementing the policies, to understand the reality of the epidemic burden in the countries and the inputs available at their disposal. This allows for more efficient use of resources and the

ability to target specific populations that may be overburdened by disease. Furthermore, reliable data is also crucial to ensure decision-makers are accountable to their commitments. While regional influence can have an impact on national policies, researching data flows invariably requires understanding how country context has an impact on this process. Therefore, understanding this link between research and policy is fundamental to shifting toward evidence-based policy-making through a mechanism that has been termed "knowledge translation," which requires the identification and communication of key messages for target audiences in a language appropriate for this audience. Once policies are formulated and accepted based on data, they are then operationalized and implemented at the local levels (Plochg & Klazinga, 2002).

Indeed, the literature shows that collaborations on data is essential within countries and across countries to address health threats, and regional organizations provide an ideal space for these efforts. According to the American Association for the Advancement of Science, science diplomacy uses science as a tool for enhancing or building bridges between countries. More specifically on health, the term "global health diplomacy" has gained currency in the past decade, describing the multi-level and multi-actor negotiation processes that shape and manage the global policy environment for health (Kickbusch, Silberschmidt, & Buss, 2008). Nonetheless, these issues have been relatively unexplored when discussing regional efforts, especially understanding whether regional diplomatic and coordination initiatives on health have any impact on countries.

Accounting for data that address health and poverty is one of the core goals of this article. How health data is collected and approached at the global level has trickle-down effects on how countries address poverty and health. Historically, the approach to poverty has been closely associated with the political views of policy-makers (Noel, 2006), and it is now clear that the decisions made by these politicians lead to favorable or unfavorable conditions for health, also called the social determinants of health.

Data and research have also been political tools. According to the field, funding for research may be scarce, and that which does become funded is an expression of the interests of the decision-makers. Low- and middle-income countries (LMICs) are particularly affected by this issue. In addition to the lack of disaggregated data (data which looks at sub-populations uncovering inequities in the health response), another issue affecting LMICs is the response to a grouping of infections classified as neglected tropical diseases (NTDs). These diseases primarily affect the poor due to lack of proper sanitation and access to basic services. NTDs were previously not subjected to compulsory reporting in some countries since they were not considered as much of a public health threat as other diseases, such as

HIV/AIDS, tuberculosis and malaria, which means the availability of data for these diseases is still low (Ehrenberg & Ault, 2005). This significantly decreased their visibility at the global level, leading to less donor investment. Moreover, given the populations they affect, there is less interest in generating research for the development of new diagnostics, vaccines and drugs by the private sector (Trouiller et al., 2002), further compounding the problem of lack of affordable interventions.

Within this complex system of global health governance, it is important to ask to what extent actors are sufficiently informed to be able to prioritize actions at the global, regional and local level. Although there is information available on national health information systems, there is little knowledge on how these institutions interact with other outside institutions, particularly the regional level. We seek to understand the following:

- What is the monitoring capacity of these actors and do they communicate with each other?
- Do the regional organizations compile and process the health information from their member countries?
- Do they support these countries to collate that data and/or to improve data quality or strengthen the capacity of countries to manage this data?
- How do regional organizations in practice use available data in support of regional health (and poverty) goals?
- Are there any discernible differences in approach to health information that might reveal differences or tensions in what are considered to be matters of strategic public and policy importance?
- What are the points of institutional connection and fragmentation between national and regional spheres of governance in respect of data collection and usage, which may enhance/hinder the realization of strategic goals?

Furthermore, given the inextricable links between poverty and health, it has become increasingly important to understand whether regional organizations are key actors driving progress toward inclusive health systems, policies and services.

This article examines regional and national level sharing of data in order to understand institutional roles in data sharing toward poverty reduction. Mapping policy-making processes around data flows and coordination allows us to identify what institutional mechanisms are in place to develop health policies and what information is available to monitor and support the development and implementation of these policies. Through this, the study will also elucidate whether health diplomacy has tangible

effects on country health systems by examining the potential of regional organizations to serve as hubs for information generation and sharing.

Methods

SADC and UNASUR were selected according to several criteria:

- Composition. They are both sub-regional organizations that are similar in size, UNASUR has 12 member states and SADC has 16 member states.
- Involvement in health. They both lead regional theme-specific networks and country-based working groups to implement health projects.
- Collaboration between states on health. Both organizations enable initiatives referring patients between member states.
- Role in research. These organizations provide leadership regarding the dissemination of research and communication technologies for practitioners and policy-makers.
- Surveillance and specific initiatives regarding medicines. Both organizations support health surveillance, and they lead regional strategies for the production and commercialization of medicines.

Both SADC and UNASUR have formulated goals and have developed institutional competences in the areas of health and poverty reduction in order to address the high levels of poverty incidence and the challenges their health systems face (SADC, 1999; UNASUR, 2009). Although we find parallel goals in SADC and UNASUR, policy development practices and methods have taken different forms, and as we shall see later in this article, this also translates into differences in the information systems underpinning policy development around health and poverty in the regions.

We undertook a mapping process of the two regional cases and four country cases (Bolivia, Paraguay, Swaziland and Zambia) in order to understand regional and national level sharing of data at different levels (subnational, national, regional and global). These countries were chosen since they have similar income levels; all but Paraguay, an upper-middle income country that has experienced recent rapid growth, are lower middle-income countries.

This mapping process was informed by a review of gray and peer-reviewed literature on health data sharing, surveillance and institutional collaboration. We reviewed papers published in Spanish and English by searching major databases such as Embase, PubMed and Google Scholar.

In addition, we reviewed institutional websites (such as Ministry of Health, Ministry of Finance, WHO country office and WHO) and their databases when available. When we found gaps in information, specifically in the Bolivian and Swaziland cases, we also interviewed local officials.

While we recognize the role of other actors in data sharing, such as non-governmental organizations (NGOs), we focused on government institutions since we were interested in exploring the interaction of member states and global institutions with regional organizations. Future research will seek to understand the role of other actors within this process.

Global-national information production and sharing

As policy-making involves a multiplicity of actors at the global, regional, national and local levels, this is also the case for data generation, compilation, management and reporting, which inform decision-making on health. The starting point for our analysis is the interaction between the global and national levels. In the next section, the more recent role of regional organizations will be discussed.

We will first describe the role of global institutions, after which the national level will be analyzed. The latter will be done by focusing on two case studies in each region: Bolivia and Paraguay in South America, and Swaziland and Zambia in Southern Africa.

Global level

Global institutions, such as the WHO through the WHO Global Health Observatory, provide a composite of data and analyses on health priorities that allow for comparative health analyses, identification of health trends and determinants that in principle support decision-making at the global and national levels. The statistics collected by the WHO cover diseases, immunization levels, reproductive health figures, and data on health personnel, among other health system data. The Health Metrics Network (HMN) is a WHO initiative that supports countries in strengthening their national health information systems and to improve the generation of health statistics. Moreover, the yearly World Health Statistics report compiles health data from its 194 member states, which also included progress toward the health Millennium Development Goals (MDGs).[1]

WHO is also present at the regional level through its six regional offices, which have each established health databases for their countries. The majority of this data is based on country and WHO data. However, the EURO office through its European Health for All Database also in-

cludes data obtained from the statistical office of the European Union (EUROSTAT) and the Organisation for Economic Co-operation and Development (OECD). This information is updated twice a year[2].

The Regional Office for Africa of the WHO (AFRO) has created the African Health Observatory (AHO), which is responsible for health-related data. AHO provides a space for: sharing data; producing and sharing evidence; generating networks for evidence translation; and supporting countries establishing national or sub-national health observatories.[3] AHO has made important efforts to disaggregate data, which allows for more targeted policy-making, categorizing it according to male/female and rural/urban and income-groups. Other actors that contribute relevant information to these reports are the United Nations International Children's Emergency Fund (UNICEF), the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Institute for Statistics, the UN Statistical Division, the MDG database, the OECD Development Assistance Committee (DAC), the World Bank, the International Telecommunication Union, and the United Nations Population Fund (UNFPA). AHO also makes use of unspecified national data, which has been adjusted for underreporting.[4]

The WHO office for the Americas, the Pan American Health Organization (PAHO), has developed several databases with composite and disaggregated indicators from member countries. These include the basic health indicator database with 114 health indicators that are organized under the categories of demographics, morbidity and risk factors, mortality, resources and health coverage, and socioeconomic data. Data sources include the PAHO Health Information Platform (PHIP) and country representatives through the basic indicators online data entry tool. The PHIP is an innovative platform that integrates data from the PAHO core health indicator initiative, the regional mortality database and data from different health areas within PAHO. This aims to facilitate health analysis, monitor progress of key health indicators, predict public health issues and support timely decision-making in the region, among other things.[5] Finally, PAHO publishes the Health in the Americas report every five years where information is compiled processed and reviewed by PAHO in collaboration with country officials to provide an overview of health in the region.[6]

The Economic Commission for Latin America and the Caribbean (ECLAC) is also an important UN office that publishes a yearly statistical book on Latin America and the Caribbean and shares information on poverty and inequities in this region through various publications and dedicated databases (ECLAC, 2014). Other UN agencies, such as UNICEF and UNAIDS, have established systems for monitoring progress in health among children and women, and HIV/AIDS in the countries. These publish reports on a periodic basis that are available to the public. Further-

more, UNAIDS relies on civil society organizations for the generation of data for several indicators related to their work in areas such as young people, key high-risk populations and pregnant women. They also collect data on national spending on HIV/AIDS through their National AIDS Spending Assessments (NASA) tool and the Global AIDS Response Progress Reporting (GARPR) tool developed in coordination with WHO, UNICEF and the European Centre for Disease Prevention and Control. This tool includes indicators collected through population-based sample surveys, behavioral surveillance surveys, patient tracking systems, health information systems, and sentinel surveillance, among others.[7]

Health-related demographic statistics are collected (from the national authorities via the Vital Statistics Questionnaire) and published by UN Statistics Division (UNSD). These include disaggregated natality and mortality statistics, including deaths by cause as collected by WHO. UNSD is also active in the area of human functioning and disability statistics.

On the other hand, the World Bank has also been at the forefront of sharing data through their World Development Indicators (WDI) database around not only economic indicators but also health, nutrition and population statistics. The HealthStats database draws from the WDI and other data sources, such as household surveys, WHO, UNICEF, FAO, UNDP, UNFPA, OECD and other country sources.[8]

Besides the World Bank, funding agencies that emerged in the past 15 years have been increasingly important actors in global health, and through their activities, they have also been involved in data generation. The Global Alliance for Vaccination and Immunization (GAVI) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) have been recognized for their transparency in reporting financing and results data for their activities and making them available to the public (Spicer et al., 2010).

As explained later on in this article, regional organizations have a potential role in mediating between the global and the national levels by using their familiarity and convening power among their member states to promote the adequate collection of need-specific data at the national level and harmonize data at the regional level. This would generate new possibilities for information exchange with the global level, where these organizations could establish themselves as authorities in the field of health or other social issues for their regions.

National level

Bolivia

The Ministry of Health (MoHB) is the main health actor in Bolivia, and it is responsible for collecting, storing, presenting and publishing data on

health. This role is coordinated with the Ministry of Development and its subdivision, the National Institute of Statistics. Like most Latin American countries, the Bolivian health system is composed of the public, the private and the social security sector. The state health institutions are categorized according to their level of attention through the coordinating network and health system. Primary and secondary care services, where general physician and specialized care services are conducted, are located at the municipal level, and tertiary care, usually taking place in large hospitals, is located at the departmental level. In terms of organization, the health facilities located at the municipal level are coordinated by the network coordinators. At the same time, the departmental level falls under the responsibility of the *Servicio Departamental de Salud* (SEDES) and at the national level, the Ministry of Health. All of these compose the Bolivian health system.[9] The private sector is meant to report to the SNIS but in reality only a small proportion of these establishments do. One of the reasons for this is that a large part of the private facilities are not registered by the departmental-level SEDES. Figure 1 provides a visual representation of these national-global data flows. As this figure shows, the national level provides information directly to the global level.

All of the public sector facilities report to the National Institute of Statistics (SNIS), which means that information is centralized in one place yet major weaknesses exist in terms of quality of data. This institute collects data at the departmental, provincial and municipal levels and data is subdivided into three areas: women, children under five and services. This data is mainly collected through clinical health forms that are filled in at the hospital level and supported by household surveys conducted since 1978. The Institute also collects data through surveys, which include permanent household surveys, integrated household surveys and national employment surveys.[10] The ENDSA, considered the main reference point for public policy design around health in the country, is an example of a large-scale national survey conducted periodically since 1989. This survey collects information on family planning, infant mortality, child health, breastfeeding and nutrition, domestic violence, attitudes toward HIV/AIDS and female empowerment.[11]

The national health information system collects health sector and other sectoral information at the different levels of the health system, which allows for the analysis of the social determinants of health and contextual factors that affect health. This system is composed of several information subsystems in order to provide for an agile system that can support the generation of timely and reliable information to support decision-making. Health officials are trained in the analysis and interpretation of this data for the formulation of policy recommendations. It is important

to note that the Drug Unit within the Ministry of Health and Department of Epidemiology has created a Health Situation Room that publishes data on medicines prices, main health problems, cost of health care per capita and data on donor funds, given the Ministry of Health's goal to decrease the cost of drugs and make effective use of resources.

In addition to these health officials, committees for the analysis of information (CAI) have been established at different levels of the health system in order to obtain a comprehensive and disaggregated view of health actions and to provide inputs for decision-making, as well as adapting and adjusting health plans according to need. Moreover, these CAI are composed of smaller offices, which periodically meet to analyze information and make decisions.[12]

The SNIS has also collaborated with other actors, namely UNICEF in a project that took place in 2000, which conducted household surveys requesting information on literacy levels, water and sanitation, child mortality, contraceptive use, immunization levels, and more (SNIS, 2000).

In addition to information sharing at the regional level, Bolivia also reports the regularly mandated indicators required by global actors such as WHO. Two examples are the inputs provided to the Global Health Observatory in the WHO and UNAIDS. Information from the SNIS and MSD surveys are shared with the Global Health Observatory at the WHO level,

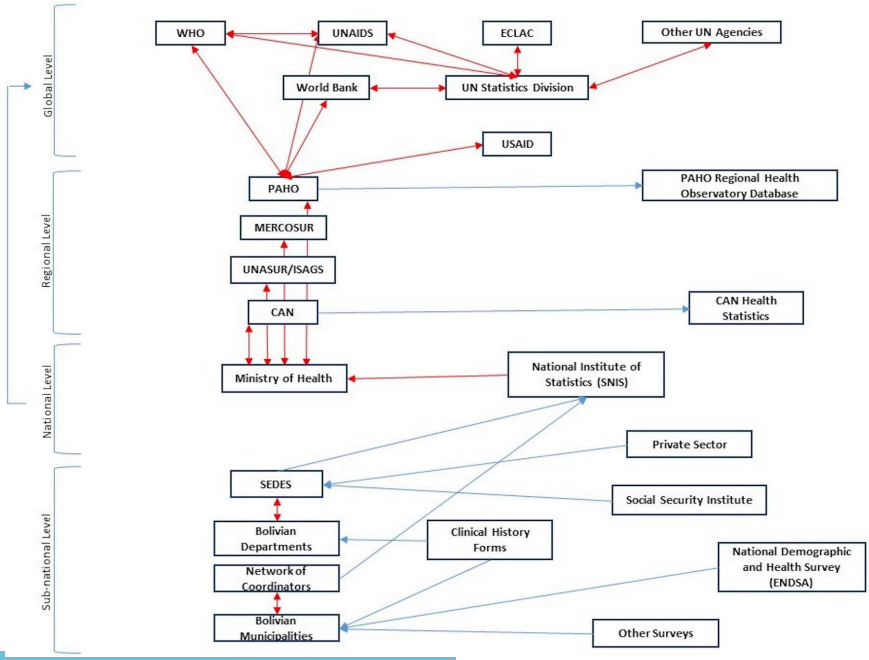

Figure 1 • Information flows: Bolivia

in addition to WHO and World Bank data. In the case of UNAIDS, they draw on data from the National Health Survey (ENDSA), the National Health Information System (SNIS) and a National Study on HIV and Sexually Transmitted Diseases (PREVETS) (UNAIDS, 2011).

However, important data quality issues are still observed. These issues are mainly related to lack of reporting of all health services. This underreporting is partly related with the manner in which data is shared. In some areas it is still done manually, which can explain reporting problems due to the extra data burden on health workers. The SNIS has begun to expand their computerized system in all health services, but this has not been completed yet due to logistical problems such as lack of computers or access to the internet. Another perspective is that health personnel may overestimate to reach targets.[13] For our purposes, these issues have several implications since the problems with quality and reliability of data at the health facility level hinder appropriate decision-making, and these data issues trigger a domino effect where each subsequent level, going through the regional and global levels, work off of the faulty data. This can also explain how insufficient funding of the health sector has repercussions on data quality. This in turn can have an impact on the appropriate targeting of activities and resources to key populations.

Paraguay

Paraguay is a landlocked country composed of 18 departments (that include the capital region) and 218 districts. The health system is highly fragmented at the provider level, lacking coordination between subsectors. This results in an overlap in functions between the Ministry of Health (MSPyBS), the Social Welfare Institute (IPS) and the private sector. This lack of coordination has generated a concentration of health services in some geographical areas, while others are effectively ignored. The MSPyBS is responsible for coordinating the health data generation and monitoring efforts in the country. This responds to the country's goal of achieving the MDGs and following the regional guidelines established by UNASUR and PAHO (MSPyBS, 2012).

The main office responsible for managing the health information system is the General Office for Strategic Health Information (DIGIES) and its subdivisions (Figure 2 represents the structure of the health information system and its relationship with other organizations). In addition to this, another division of the ministry of health, the Office of Information Technology and Communication manages 13 sub-systems specific for different health data. Some examples of these are the vital statistics information sub-system (SSIEV), the hospital reporting system (SMH), the automated information system for inventory control (SICAIP), and the national tuber-

culosis control expert system (PNCT) (MSPyBS, 2012). The Epidemiologic Surveillance Department (SNVS) handles a large amount of information on primary health care and surveillance. Within these sub-systems the SSIEV is the best established system, which allows for disaggregated data at the departmental level (Guillen, 2011). Furthermore, the DIGIES shares data with the General Office for Statistics, Surveys and Census (DGEEC), which also reports data on poverty, inequality and indigenous populations.

This multiplicity of data sources hinders the ability of human resources to deliver timely, accurate and complete data, and it is important to note that there is a lack of data on human resources for health. This resulted in inadequate availability and composition of the health workforce, particularly around the provision of essential health services.[14]

Issues around data quality have been raised by the ministry itself. Data generated in one health information sub-system frequently do not coincide with data from the office of biostatistics (part of the DIGIES office), although both statistics are reported to be collected from the activity reports. Furthermore, although there is a variety of health indicators available, the sources of information are disperse and the manner in which data is presented hinders data analysis, particularly in the health regions (MSPyBS, 2012). According to an annual report published by UNICEF this

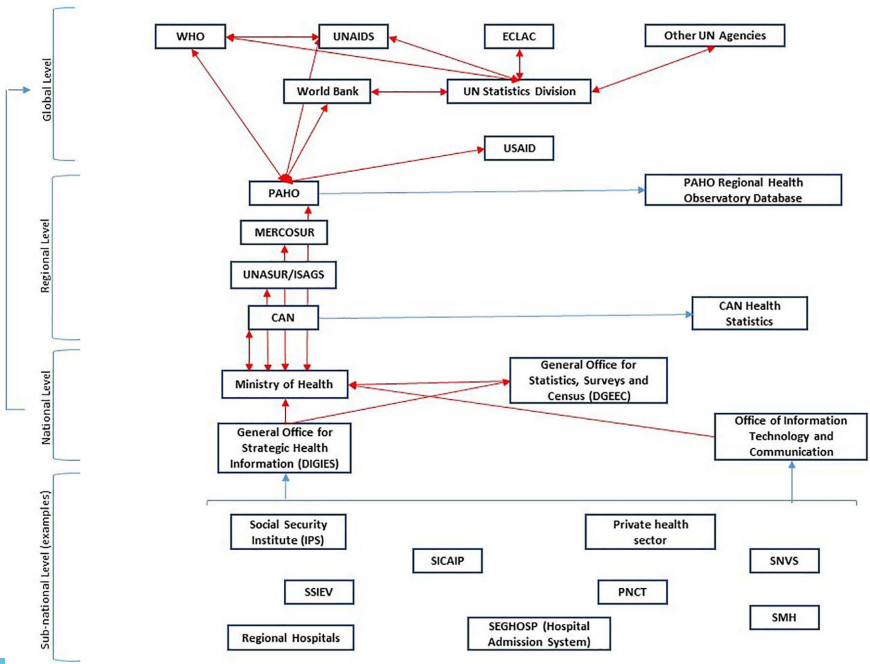

Figure 2 • Information flows: Paraguay

is exacerbated by resistance by some officials to share data within a common information system.[15]

Recent efforts to improve the information system with cooperation from Brazil have focused on automating data collection, objective 4 of the 2007–2011 health strategic plan seeking to gradually strengthen the health information system. The use of web-based information systems is relatively new, being implemented in 2009 in hospitals and less complex health centers. The ministry issued a policy on information technology and communication in 2010, and the decision to implement a free software program in the ministry was formalized through ministerial decree no. 914 in 2011. Improvements were centered on: the implementation of a data center in the server computers in the ministry; the allocation of computers in hospitals, clinics and family health units; the expansion of internet access to 72 health service centers; and installing intranet in 32 centers (Guillen, 2011). Finally, one of the positive developments has also been the publication of yearly reports with basic health information published on the MSPyBS website ranging back to 1998.[16]

Swaziland

The Swazi Ministry of Health comprises several departments that engage in the generation and communication of health-relevant statistics, such as the Health Statistical Unit, the Monitoring and Evaluation Unit, the HIV and AIDS Information System (see Figure 3). Also, the Health Management Information System and its Management System are part of the Ministry of Health. The Health Statistical Unit, where the health information system is located, is part of the Ministry of Health of Swaziland and receives information and relevant data through its regional offices. The Monitoring and Evaluation Unit receives reports on a monthly basis from various national registers such as the Maternity Register and family planning Register among others. It is part of the Ministry of Health of Swaziland.[17]

Swaziland epitomizes the typical state of data flows in SADC. As the SADC telehealth report makes clear, the flow of data for many countries of the region, including Swaziland, remains largely rudimentary and reliant on very inefficient management systems that are still largely non-digitized. The SADC draft telehealth report of 2012 appositely captures this state of affairs of the rudimentary nature of data capture in the entire region of SADC. It states that:

> "With the exception of Mauritius, the dominant data capture mode at facility level is on paper, and transmission is by hand delivery to the district. At district level there are computers where data are entered. But as there is no connectivity the electronic data are sent on USB keys to the

provincial level or to the national level where there are no provinces as in Botswana. Provinces have computers and connectivity and can send data to the central level by email, when email services are available or by USB key when they are not" (SADC, 2012a, p. 22).

Swaziland and Zambia are singled out in the report as particularly poor performers in this respect.

In Swaziland, the Health Information System obtains its information from its regional offices, which in turn source data from sub-regional facilities and community-level service points as well as from the Child Immunization Register and Family Planning Register, among others. Reporting takes place on a monthly basis. The Health Information System is managed by the Health Information System Coordination Committee and produces the Health Information System Strategy (SADC, 2012a). The Health Management Information System obtains its information from the national census, the Vital Registration Data/Registry, the Population-based Health Surveys, the Disease Surveillance System and the Demographic and Health Surveys. The Disease Surveillance System takes place via ad hoc reporting. The Population-based Health Surveys as articulated by the WHO include: (1) the 2000 Maternal Audit and Sexual Reproductive Health Needs Assessment Survey; (2) the 2002 Community Health Survey; (3) the 2002 Risk Factor Survey; and (4) the 2006–2007 Demographic and Health Survey. According to the Central Statistics Office, vital statistics include life events such as births, marriages, migration and deaths. Information is primarily obtained from the Civil Registration. This division conducts household-based surveys such as the Inter-Censal Survey and Multiple Indicator Cluster Survey.[18] The Child Immunization Register and Family Planning Register process their information further through the regional offices. Regional offices are managed by the Regional Health Management Team.[19] Information is disseminated further through the Health Information System, which operates at the national level.

The HIV/AIDS Information System is managed by the National HIV/AIDS Monitoring and Evaluation Technical Working Group, which is part of the Ministry of Health of Swaziland. It receives information from the Regional and Multi-sectoral HIV/AIDS Coordinating Committees. Regional offices are present in all four regions of Swaziland: Hhohho, Manzini, Shiselweni and Lubombo. The HIV Incidence Measurement Survey (SHIMS) is also conducted by the Ministry of Health, in cooperation with the U.S. Centers for Disease Control and Prevention (CDC) and ICAP-Columbia University as well as with the Central Statistics Office of Swaziland being mentioned as a stakeholder.[20]

The Central Statistics Office feeds its information to SADC's Statistical Year Books and to the WHO. The Central Statistics Office also runs the

databank SwaziInfo, which contains health-relevant information, which is described below. The quality of this data has, however, been heavily criticized by the WHO. Specifically, the WHO report specifies that:

> Swaziland has established the "SwaziInfo" (DevInfo) system, which identifies and compiles core development indicators across sectors. These include the health-related Millennium Development Goals (MDGs) indicators. An area of weakness was that reporting against health indicators was inconsistent and incomplete. Although the health related indicators were clearly defined, the actual reporting is not sufficient due to the absence of an effective mechanism for enforcement. For purposes of health sector planning, program management and performance tracking, the indicators in the SwaziInfo are however regarded insufficient. A number of critical diseases and interventions were not included. Similarly, indicators for most support systems (e.g., infrastructure, equipment, pharmaceuticals and logistics, and financing) were not included.[21]

The Demographic and Health Survey is a household-based survey conducted by the Central Statistics Office of Swaziland, but it also processes information through the Health Management Information System, which is part of the Ministry of Health.[22] The Swazi Demographic Health Survey has so far been only conducted once (2006–2007) and is disaggregated according to gender and age groups.[23]

Community-service points and health facilities exist and process information through the regional offices on a monthly basis. The Kingdom of Swaziland's health facilities consist of "14 hospitals of which 6 are private hospitals, 5 government health centres, 6 public health units, 215 clinics and outreach sites."[24] Of all health facilities in Swaziland, 45 per cent belong to the public sector, 12 per cent are owned by industries, 15 per cent by missions, 5 per cent by NGOs, 20 per cent by private practitioners and 3 per cent by private nurses. On this level, the Child Immunization Register, Maternity Register, and Family Planning Register, are generated, among others. Sub-national offices related to the communication of health-related data present in the four regions of Swaziland are as follows: the Regional and Multi-Sectoral HIV and AIDS Coordinating Committees, which communicate information to the HIV and AIDS Information System; the Regional Offices of the Health Statistical Unit, which is part of the Ministry of Health; the Regional Offices of the Health Information System, which is managed by the Regional Health Management Team; and the Regional Offices of the Birth Marriages and Deaths (BMD) Registry, which process information through the national BMD Registry.[25] Thus, on the sub-national level, there seems to be no point where the information for the monitoring and evaluation unit is aggregated.

In summary, within the Government of Swaziland, the Ministry of Health and the Central Statistics Office are significant actors in generating

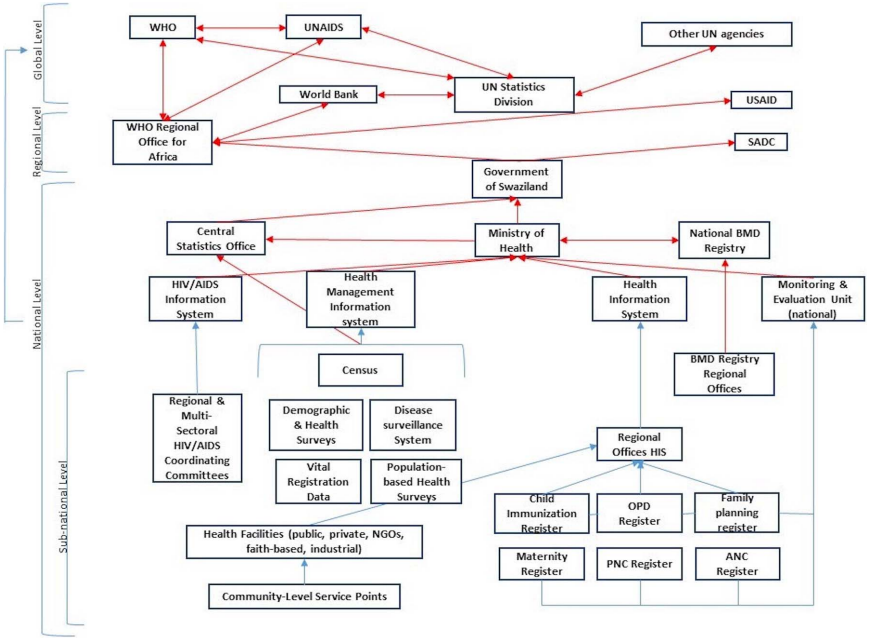

Figure 3 • Information flows: Swaziland

and communicating health-relevant data. The most important actors and systems in the aggregation and communication of statistically relevant data seem to be the Health Information System, the Health Management Information System, the Health Statistical Unit, the Monitoring and Evaluation Unit and the National HIV and AIDS Monitoring and Evaluation System, which are all within the Ministry of Health of Swaziland. However, what seems striking is the apparently low level of connectedness between the Ministry of Health and the other actors at the national level, especially a lack of a connection between its Health Information System and the Central Statistics Office. The SHIMS and the Demographic and Health Survey seem to be the only instances where data is disseminated between the two.

Zambia

Zambia has experienced high economic growth in the last decade, averaging 6% GDP growth rate per year, which has been supported by a stable political system. However, this growth has not translated into significant levels of poverty reduction, demonstrated by the fact that 60% of the population is considered to be living below the poverty line and 42% is considered to be living in extreme poverty[26]. Moreover, the past years have shown low expenditure on health as a percentage of the total budget,

demonstrated by the fact that the Abuja target of 15% was only met until 2015. In addition, the infant mortality rate has reduced from 78 in 2007 to 45 in 2014. Likewise, the maternal mortality rate has decreased from 591 in 2007 to 398 in 2014.[27] This is encouraging news, yet the country still reports poor health indicators, with expectancy rates of 55 for men and 58 for women, lower than the average of 70 years for the global population.[28]

The health system in Zambia is decentralized, coordinated by two ministries since 2012. The Ministry of Health of Zambia (MoHZ) is responsible for higher level services (second and third-line care, as well as specialized hospitals) and health policy and common services, such as health infrastructure and procurement of drugs and medical services. The Ministry of Community Development, Mother and Child Health (MCDMCH) is responsible for lower level services, such as district hospitals, health centers and health posts. To facilitate coordination and interaction between levels, provincial and district health offices, as well as neighborhood health committees (NHCs) at the community level have been created. Other health service providers include: faith-based organizations; civil society organizations; the private sector; and traditional health service providers that are not monitored by the MoHZ.[29]

The health information system is organized under the Health Management Information System (HMIS), which monitors the prioritized indicators and captures data from all public health facilities (see Figure 4 for a representation of data flows in Zambia). The HMIS was created in 1996 and has undergone several revisions, which have enabled the incorporation of new and revised indicators to meet data needs and demands. In this regard, the HMIS platform has evolved over time and is currently using a web-based District Health Information System (DHIS) as a data management tool allowing for enhanced capabilities of access, timeliness, data completeness, accuracy, transparency and validation. Specific parts of the HMIS, District Health Information System (DHIS) and the hospital HIS are handled by the respective ministries according to the level of care and mandate.

Currently HMIS has been rolled out to all provinces, districts and health facilities. This has been facilitated through several adopted strategies, which include: training in data management of staff at all levels in DHIS; continuous revision of HMIS to respond to current data needs; strengthening of data audit, review and supervision; and improved use of HMIS data for evidence-based programming. However, the HMIS has not been void of challenges, which have led to low stakeholder confidence in the data generated. This is primarily driven by a lack of skilled and designated staff at the point of data collection and some districts, inadequate supervision, limited coverage of a complimentary electronic patient-level

database and non-submission of reports from some private for-profit health facilities, inadequate data collection tools, inaccurate data, existence of parallel reporting systems.[30]

Data generated by the HMIS are sent to the Central Statistical Office of Zambia (CSO) for compilation on a quarterly basis. The CSO also compiles other data related to health, such as population and poverty data. The health data is also compiled in an Annual Health Statistics Bulletin to inform all actors of the performance and progress of the health indicators. Data generation at the primary level is done by using Registration Books and Patient Files. Specially designed paper forms are used to capture aggregated data for feeding into the HMIS system. Data are initially collected at the primary level. They are then imputed into the system through a specific summary form and then gradually consolidated at the district, province and national levels. Consolidation and analyses at each of these levels are strongly facilitated by the (recently improved) computer queries. The data are used to support the planning and implementation of activities with the guidance of the MoH. The information system was upgraded in 2008, and the second key routine system is the Integrated Disease Surveillance and Response (IDSR) system.[31]

Moreover, health status indicators are collected through surveys such as the Zambia Demographic and Health Survey (ZDHS), the Zambia Health Household Expenditure and Utilization Service (ZHHEUS) and the Living Conditions Monitoring Survey (LCMS). Civil society organizations, the central statistical office and the University of Zambia collaborate with the ministry to undertake these surveys and collect the data in a timely manner. On the other hand, these indicators are collected via indirect methods through household surveys or censuses where model questionnaires are applied. Better data that would include empirical data would be through vital registration. Indeed, the new national health strategic plan for 2011–2015 recognizes the need for improved health information systems, particularly related to the distribution of resources. This report outlines five strategic directions to improve the national health system: (1) strengthening and capacity building of health information cadres at all levels in order to improve the efficiency, quality and timely availability; (2) strengthening data capturing capacity of HMIS to include other important conditions, e.g., NCDs and eye disease; (3) rollout and strengthening the HMIS to all public and private hospitals and at community level; (4) strengthening the harmonization and coordination of different health information systems among programs; and (5) supporting the use of research evidence to translate knowledge into policy and practice.

The WHO published a report in 2007 assessing the health information system in Zambia and found that the quality of health indicators on

health status and health system is adequate, except with respect to disaggregation.[32] Since then, the Ministry of Health has made important efforts among these the fact that data published in Zambia Demographic and Health Survey (ZDHS), poverty mapping and ZHHEUS is now disaggregated to lower levels such as provinces. In some cases, this goes as far as district and ward levels. As previously mentioned, disaggregated statistics are particularly important for reaching low-income groups since knowing what populations are most affected by poor health can help target intervention toward these groups.

There have been several efforts by SADC to support the health information system in Zambia. An example is the SADC Pharmaceutical Business Plan 2007–2013 that aimed to ensure the availability of essential medicines in order to reduce disease burden in countries. For this, Zambia collaborated with the WHO for the collection of data on pharmaceutical availability in the country (SADC, 2006). At the same time, SADC reports health data on all member countries in the SADC Statistics Yearbook, which allows for a visualization of the health situation in the region. As we will see in the SADC section, these data distinguish between rural and urban populations but are not further disaggregated. This may partly be due to the differing capacity of member states to report these types of data, which explains the decision to opt for cross-country comparable data. As a member of SADC, Zambia is also a signatory of the

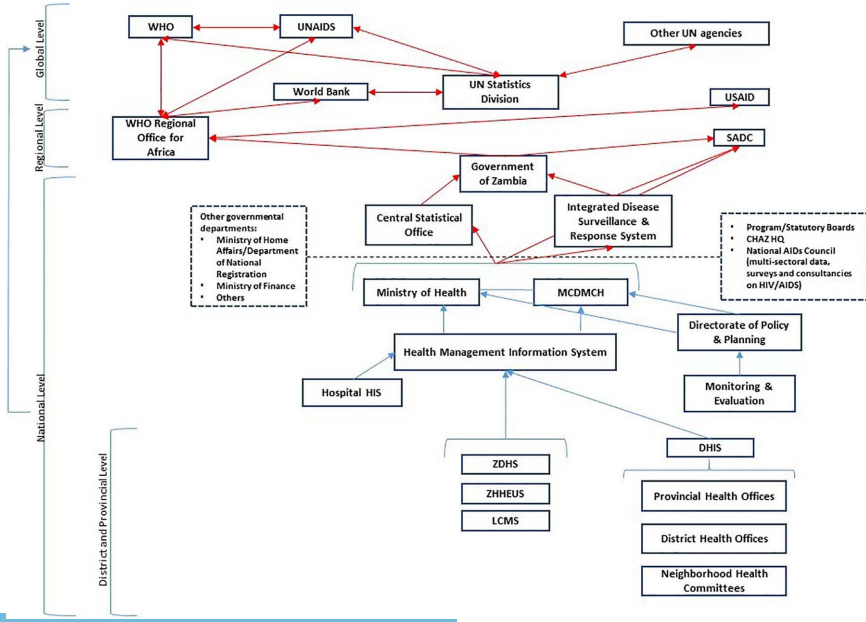

Figure 4 • Information flows: Zambia

SADC health protocol, which includes an article on health information systems (SADC, 1999).

The role of regional organizations

While the information flows between global and national levels and between national and local levels have been widely studied, little is known about the sharing of information between regional bodies, on the one hand, and the country and global levels, on the other. This section outlines the involvement of the regional bodies in the case of UNASUR and SADC.

UNASUR region

UNASUR was created in 2008 after 12 governments signed the Constitutive Treaty of the Union. Members include all MERCOSUR (Common Market of the South) member states, all Andean Community (CAN) member states, together with Chile, Suriname and Guyana. UNASUR's stated objective is highly focused on reducing inequality and promoting social inclusion (UNASUR, 2009), signaling a commitment to work with disadvantaged populations.

The South American Health Council was established in 2008 and is a permanent body composed of ministers of health from the UNASUR member countries. This provides a space of dialogue to support policy-making around health, which incorporates efforts from other regional bodies, such as MERCOSUR, ORAS, CONHU and ACTO (ISAGS, 2013). A health-specific body, the South American Institute of Government in Health (ISAGS) was created in 2010, following the recommendation of the South American Health Council, to provide a space for managing and producing knowledge, developing leadership, and providing technical support (UNASUR, 2009). The ISAGS is further composed of sub-committees, networks and working groups and each has a specific policy focus. This also resulted in the publication of a five-year work plan (2010–2015) that steered their work (UNASUR, 2009).

This work plan is organized around six strategic objectives and 28 expected outcomes. Each objective is led by one country with an alternate country coordinator and address: universal health coverage and access to pharmaceuticals; universal health systems; surveillance and response; social determinants of health; and human resources development and management (UNASUR, 2009). This plan entailed the generation of baseline data and the development of indicators to measure targets. However, an evaluation conducted in 2013 found that there are no existing coordination

or surveillance mechanisms to monitor the execution of activities within this plan but instead guidelines for data collection existed. The authors also found that proposed objectives cannot be currently modified due to a lack of directives and were hindered by poor continuity of activities due to changes in personnel. Furthermore, an important recommendation was the creation of regulations to ensure periodic reporting of activities by member states so information could be circulated among the different actors (Garron et al., 2013).

Indeed, health surveillance and strengthening these surveillance mechanisms are some of the core objectives of UNASUR since data generation and analysis are seen as having a crucial role in reducing asymmetries between the member states (UNASUR, 2009). In this, ISAGS has an important role in advising countries and generating capacities. Moreover, the creation of universal health information systems around best practices has been mentioned as a key step toward universal health systems (ISAGS, 2013), yet this has not been operationalized. Indeed, the UNASUR network of national health institute (RINS) laboratories convened in 2012 and recognizing the importance of integrating the country health information systems for epidemiological surveillance purposes, they recommended that bilateral activities should be organized for this purpose (UNASUR, 2013), but there is no evidence that this has been conducted. Due to political developments in several South American countries, the future of UNASUR looks—at the moment of writing—uncertain.

Role of UNASUR in data management

UNASUR does not generate health data itself but compiles and reports data from its member countries to provide policy recommendations. ISAGS provides data analysis and policy recommendations and produces publications, such as the *Health Surveillance in South America* book that provides an overview of the health situation in their member states, drawing on health data from other institutions, such as PAHO, WHO, UNAIDS, and UNICEF, member countries, the World Bank, UNDP, and the UN for statistics on social determinants of health (ISAGS, 2013).

Although the technical groups and networks are involved in the promotion of common health policies, they are not involved in the collection of primary data nor do they have databases to collect data. However, they do participate in mapping efforts and cancer registries for the coordination of national cancer institutes from the member countries and produce policy recommendations (ISAGS, 2013). While developing a system for cancer registration among member states is a positive development, it may signal the creation of separate information systems for different

health areas, which may contradict UNASUR's focus on universal health systems.

Member states generate health information through their national health systems and communicate this at the UNASUR level through the ministerial meetings, working groups and other committees. Furthermore, data generated from the countries also support the work of ISAGS in developing policy recommendations and providing technical support.

Targeting: the poor and cross-border diseases

Addressing social determinants of health is one of the strategic objectives of the five-year health plan. This objective seeks to reduce inequalities in each of the member states through the generation of information, intersectoral partnerships and community participation in the formulation, execution and follow-up of public health policies (ISAGS, 2009). Given UNASUR's focus on universal health coverage, it is not surprising that social determinants of health constitute one of the main objectives. Within this area they seek to train health officials on social determinants of health, involve local activists in the generation of plans and promote the development of public health policies (ISAGS, 2009).

While UNASUR does have a mandate to develop activities focused on the poor and improve equity and publish reports on these issues, data is taken from external sources and the member states. Although some countries have available disaggregated data for different population quintiles, others do not. Moreover, this does not seem to cover all indicators but just specific ones, around maternal and child health, for example, which are reported as part of monitoring progress on the MDGs. It is important to note that while this limits UNASUR's ability to monitor progress toward inclusive care, UNASUR does not arise as a supranational body, which means it respects the autonomy of countries, including their health monitoring systems. In the case of ISAGS, their role is to strengthen country capacities while respecting individual surveillance systems and data collection mechanisms.

Populations located in high-risk geographical areas and borders are prioritized in UNASUR due to their vulnerability to diseases (UNASUR, 2009). More specifically, the issue of border populations is addressed in the strategic objective on the development of universal health systems by seeking to foster the reciprocity and complementarity in the provision of health services between countries, especially in border areas. They also recognize the already existing bilateral agreements in the region (UNASUR, 2009). Examples of these agreements are those between Argentina

and Paraguay, triggered by efforts to control dengue fever, and between Bolivia and Paraguay.[33]

Despite the important focus on border populations, no primary data are generated at the UNASUR level aside from what is available in the countries. Information on border populations and diseases is reported by ISAGS in order to support their work, but this is usually obtained from the countries themselves.

How does UNASUR support their member states?

UNASUR has been heavily involved in providing technical assistance to its member countries, fostering knowledge and information exchange around best practices, and building capacity. Human resources for health development has been one of their cornerstone projects, which has been supported by the Pan American Health Organization. As part of these efforts, they have developed an international network for health technicians' education (RETS) composed of institutions and organizations involved in the training and qualification of technical personnel in health. This network, among other things, aims to support the standardization of health training across the region (ISAGS, 2013) with the long-term goal of recognition of qualifications between member countries.

Furthermore, the network of public health schools of UNASUR (RESP-UNASUR) is composed of institutions involved in human resources training with the objective of providing a platform for exchange and supporting health systems development in the region (ISAGS, 2013). Initiatives providing technical assistance and training have also emerged bilaterally between UNASUR countries (SELA, 2010). The availability of quality data for UNASUR to conduct its work depends on the mechanisms in place in its member states to collect and analyze this data (see earlier in this article). However, UNASUR acts as a convening body, through the adequate collection of data and its use in forming policies that address inequalities.

UNASUR can also support their member states by generating synergies with the global level. UNASUR and, more specifically, ISAGS are frequently asked for input on health issues by institutions such as PAHO and WHO. At the same time, their increasing involvement at multilateral fora such as the World Health Assembly has increased their visibility at the global level and their ability to contribute to shaping the global health agenda. However, greater coordination and availability of appropriate data relevant for their work would support their technical advisory role at the global and national level.

SADC region

The Southern African Development Community (SADC) was founded in 1992 to replace the Southern African Development Coordination Conference (SADCC) that was created in April 1980. SADCC was largely built around a constellation of Frontline States that had been established as a bulwark against external influences, notably the Apartheid Government of South Africa. SADC's membership is diverse in terms of economic capacities and demographic size. SADC as an institution draws its mandate from the Windhoek Declaration or the SADC Treaty that was endorsed in 1992 and later revised in 2001, 2007, 2008, and 2009 (SADC, 2001). Moreover, SADC is a free trade area since 2008. There were plans for SADC to have a customs union by 2010 but these failed. Previous projections were to have a common market by 2015, a monetary union by 2016, and a single currency by 2018 (Europa Publications, 2008). But these plans were not met given the delays in compliance with and domestication of economic integration disciplines.

Among the goals of SADC as stipulated in its founding treaty is the promotion of peace and stability (Article 5[1][3]) and the enhancement of development. The latter goal of development is articulated in such terms that SADC aims to use regional integration to support the socially disadvantaged (Article 5[1][1]). One of the areas where cooperation between the members has been fostered over the years is in social and human development. A major component in this respect includes the promotion of cooperation among states in the area of health. SADC states signed the Health Protocol of 1999 after adopting a common health policy approach for the first time in 1997. Following the signing of the health protocol, SADC leaders have adopted many policy documents in health-related areas, including the framework on health policy endorsed in 2000 (SADC, 2007, p. 7). Other health policy documents are declarations, plans and strategies in the area of HIV/AIDS, reproductive health care, joint pharmaceutical policies and social rights.

SADC has many institutions that have been put in place to sanction the rules and ensure oversight in implementing its disciplines. The main institutions include the Summit of Heads of State and Government; the Organ on Politics Defense and Security Cooperation; the Council of Ministers; the Integrated Committee of Ministers; Standing Committee of Officials; the secretariat based in Gaborone; the SADC Tribunal and importantly, the SADC National Committees (Article 9). In the consolidated text of the treaty, Article 9A incorporates the role of the Troika. An institution that is closely engaged on social topics, especially health, is the SADC Parliamentary Forum that is not mentioned in the Treaty itself.

The secretariat services are partitioned into five main directorates, four of which deal with substantive thematic clusters and one with policy planning, including monitoring and evaluation across SADC programs and plans. Among the thematic directorates there is one that deals with Social and Human Development and Special Programs (SHD). This department has oversight over health policy in SADC. It is tasked with the coordination of health policies of member states and also ensures information exchange as needed.

Role of SADC in data management

The SHD department within the SADC secretariat plays an important role in policy elaboration; data generation; data compilation; data management and data reporting in the area of health. It derives its mandate from the SADC treaty, which makes clear that one of the goals of SADC is to pursue cooperation in social fields, including in the area of health. As such, most of the major health-related policy documents—such as the Maseru declaration on HIV/AIDS, the HIV/AIDS business plan, the pharmaceutical business plan, the business plan on reproductive health, among others—initiated from the secretariat. But this has not always been the case. Before the major institutional reforms that took place in SADC in 2001, policies were decentralized along national lines (Van Schalkwyk, 2003). As such, each SADC member state had the competence to coordinate policies in specific policy areas. For instance, South Africa had the mandate to coordinate health policies. In 2001 this changed as SHD absorbed all the competences that were previously handled by Pretoria in coordinating the policies and actions of SADC national health authorities.

A more detailed discussion of the 1999 SADC Health Protocol 1999 (SADC, 1999) is worthwhile at this juncture. The content of the text is very comprehensive in terms of the areas covered. These include: epidemic preparedness; mapping prevention, control and eradication of communicable diseases; education and training; efficient laboratory services; and health needs of women, children and vulnerable groups. Article 3 contains many provisions on coordination, collaboration, facilitation, common strategies and promotion in the area of health. In all there are nine goals elaborated. Article 4 puts in place the institutional mechanisms for implementation. They include the Health Sector Coordinating Unit (HSCU), the Health Sector Committee of Ministers (HSCM), the Health Sector Committee of Senior Officials (HSCSO) and the technical subcommittees. But this protocol was adopted in 1999 and came into force in 2004. It was adopted at a time of decentralization of the SADC services as earlier underscored. Since 2001, the services are now centralized. Health

issues are now coordinated through the SADC Department of Social and Human Development and Special Programs. Article 6 of the SADC health protocol pertains to the sharing of relevant health information and collaboration in health systems and surveillance. Specifically, Article 6(b) evokes the option of conducting Essential Regional Health research, and importantly Article 6(c) calls for a common set of indicators for communicable and non-communicable diseases in SADC. Also of relevance to the present study is Article 7, which is on Health Information Systems, and notably Article 7(d) calls for the creation of a SADC Regional Data of Health and Social Services Indicators. Apart from these provisions on indicators and health information systems other aspects are also covered in the protocol, such as chronic diseases and elderly persons (Article 14), those with disabilities (Article 15) and reproductive healthcare (Article 16). Attention is equally paid to traditional health practitioners (Article 20), mental health (Article 22), environmental health (Article 23), and cooperation in the area of pharmaceuticals (Article 29).

Articles 6 and 7 on indicators and health information systems are very important in the present task. These articles directly hinge on matters of monitoring of implementation for results. Monitoring issues are now (since 2008), handled by the Directorate of Policy Planning. Within the department of policy planning is a statistics unit with acutely limited staff. The unit composed solely of statistics experts is mandated to harmonize a variety of statistical data for the region. The unit also organizes data collection and engages in capacity-building initiatives for member states' statistical officials (Jere, 2009). SADC has a Statistics Committee that works closely with the unit but the organization is still to develop a Protocol on Statistics (Jere, 2009). There are standalone arrangements such as yearbooks and reviews to monitor what is going on; in the area of foreign trade, for instance, this task has been outsourced to outside entities due to SADC's acute limited number of experts. That being said, it should be noted that SADC has a Regional Statistics Program. What is more, it now has a Regional Strategy for the Development of Statistics elaborated in 2012 and will be operational until 2018. The template for the strategy builds on the 2010 Strategy for the Harmonization of Statistics in Africa. Among the priority areas of SADC Statistics Strategy is health.[34] The goal for statistical cooperation in health is strengthened collaboration and harmonization. The indicators used include: existence or extent of implementation of harmonized policies on health and nutrition; extent of cooperation among health professionals; existence of operational regional health institutions and facilities; mortality/health of populations; and service delivery. Within this document, one of the intervention areas is social and human development and special programs, a cluster that ad-

dresses poverty eradication through sustainable and equitable development, which mainly focuses on reporting indicators, such as GDP, income (according to quintiles) and malnutrition. A separate objective within this cluster focuses on collaboration in the health sector. This objective is measured by indicators that related to sanitation and public expenditure on health, among other areas, but it is not directly linked with poverty eradication.

In terms of specific health data generation as stipulated in the protocol on health, SHD plays a role. However, also mindful that the manpower within the department is limited (especially regarding health specialists) this task of data generation is also often outsourced to external consultancies that are used by the department. Respecting data compilation, the department also tends to outsource this task to outside experts. In any event, it organizes many events and campaigns through which, national data on health is provided to SADC by national officials through SADC National Committees dealing with health.

Health data management is also handled by the SADC secretariat. Although there is a statistical division that is supposed to manage SADC aggregated and disaggregated data on specific issues as earlier hinted, health data management is usually dealt with by the SHD. Reporting of data is not done periodically by SHD. However, when important policy plans are issued that have been endorsed by the Council of Ministers, these are duly reported by the secretariat. But the SHD also has a more profound role in terms of collecting the data reported by the national health services of SADC member states. This flow of information is ensured through formal periodic senior health official meetings as well as workshops and seminars often championed by SADC. The SADC secretariat has been supported by international cooperation or development partners in the areas of data generation, management and reporting. This has either been through direct financial support or through the secondment of statistical experts from specific development agencies who work in-house at the SADC secretariat. Of great import is the role played by non-state actors such as regional NGOs, including the Regional Network on Health Equity (EQUINET) and the Southern African Peoples' Solidarity Network. While the data NSAs report are not fed directly to SADC, they do contribute through consultations and seminars when they are called to participate alongside regional policy makers.

SADC has developed a broad policy template that helps it monitor the implementation of its regional integration disciplines. This is known as the Regional Indicative Strategic Development Plan (RISDP) (SADC, 2003). It was adopted in 2003 for a period of 15 years. Periodically SADC services and national authorities conduct an assessment of the progress

being made in meeting the goals set in the plan. For example, in the 2011 assessment it was revealed that in the area of social and human development, which also includes health, only 38% of the planned output had been realized.[35] The monitoring of the RISDP is affected thanks to the role of the SADC National Committees in the various member states. They monitor the implementation of the plan at the national level and provide status reports to the secretariat on a periodic basis (SADC, 2003, p. 151).

SADC publishes a yearbook, which contains health-relevant data (SADC, 2011). While this yearbook is meant to inform stakeholders on the development levels of the member states and in the section on health it differentiates between rural and urban populations and access to sanitation, it does not go beyond this to disaggregate data into quintiles, which is important for targeting key actions toward vulnerable populations. In the specific area of health, the SADC Health Protocol stipulates that indicators of communicable and non-communicable diseases will be developed that will help member states in meeting goals set by the organization in the realm of health. This has not been done despite the call made in a surveillance template developed by the SADC secretariat in partnership with the Centre for the Evaluation of Public Health Interventions of the London School of Hygiene and Tropical Medicine (SADC, 2010, p. 6). The surveillance template highlights the importance of a SADC HIV/AIDS Harmonized Surveillance Framework. Also it notes that in 2008, member states agreed on creating a set of HIV/AIDS indicators that had to be tracked and reported by them (SADC, 2010, pp. 7–8). A key problem with previous HIV/AIDS indicators used by SADC was the absence of metrics that captured key elements, such as pediatric care, and emerging issues, including male circumcision (SADC, 2010, p. 11). The HIV/AIDS indicators covered prevention and social mobilization; counseling, treatment, care and support; and resource mobilization.

The surveillance template refers to some of the weaknesses in terms of data flows in the region. These include the failure to meet deadlines of data input submissions, limited local use of data, limited human resource expertise, and underdeveloped data quality evaluation mechanisms (SADC, 2010, p. 6). However, the regional organization still plays an important role in coordinating national health strategies. This is the case especially on selected areas of priority such as: HIV/AIDS, malaria and tuberculosis; sexual and reproductive health care planning for greater harmonization and evidence-informed policies in these areas by 2015 (SADC, 2012a); traditional medicines; and the pharmaceutical business plan, including elements such as stronger regulatory capacity, local production and joint procurement (SADC, 2007, p. 4). In terms of data flows, SHD plays an important role in coordinating the work of the national SADC contact or

focal points in the various ministries of health. The overall oversight for data management rests with the SADC directorate for policy planning, monitoring and evaluation.

One important area where SADC has made a recent foray and which could enhance its data management efforts is in the field of telehealth. Telehealth is defined as the "use of electronic information and communication technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration" (SADC, 2012a, p. 5). The UN, the WHO and the CDC provided technical support for the SADC 2012 telehealth report. Global eHealth Consultants conducted the fieldwork in member states and collected the needed data for the report funded by the African Development Bank. The basis for the study was the demand made in SADC's health protocol on harmonization in certain aspects as health surveillance and information sharing. In the report, a Telehealth Network for Disease Surveillance (TNDS) is proposed, which is expected to meet the needs of member states and SADC secretariat in the realm of data management in the area of health. The plans are that the TNDS will help in the timely collection and reporting of health data as between member states and the SADC secretariat. But also within the countries the network will link national health ministries and national referral hospitals and laboratories. It will also serve as an inter-referral platform for SADC states as between themselves, and importantly, it will also be used as a mechanism for early warning against outbreaks of diseases in the region as a whole. It was initially expected that it would help connect national databases, linkup people and forge a Communities of Practice for Disease Surveillance in the region (SADC, 2012a, pp. 12–13). It is expected that reporting on key indicators will be done annually by member states and when necessary so that the reporting can be done in real time to amply and effectively deal with surveillance. This further corroborates the necessity of vital eHealth infrastructure (SADC, 2012a, p. 25). While expectations for the TNDS have been very high in the region, especially among practitioners (SADC, 2012a, p. 60), the zeal to pursue plans for the TNDS has been tempered as some SADC states have been reluctant to pursue the plans, and alternatives are currently being explored. Within SADC, only Mauritius and South Africa are already advanced in the use of telehealth (eHealth) with advanced information and communication technologies (ICT) infrastructure in place in the two countries. The worst performers in this respect are Swaziland, Zambia and Zimbabwe (SADC, 2012a, p. 15).

An important point to note for the regional level is that SADC foresees the creation of a Regional Development Fund as envisaged under the SADC Treaty (Article 26A) and as noted in the RISDP and requested

by the Summit of SADC leaders (SADC, 2012b, p. 17). It is hoped that the creation of such a fund will help SADC put mechanisms in place that can help it in reaching some of its social goals, including in the area of health. It is also expected that such a fund could help SADC in developing health indicators such as the ones used for monitoring economic integration. However, the plans toward this have been timid as donors are reticent about financing the new regional development fund as this may duplicate existing institutions.

SADC has a strong inter-governmental character. Compared to other regional organizations that have supranational bodies, such as the EU's Commission, the institutional density in SADC is light. This is mainly because of the strong role member states have in shaping national policies. Also, many states gained their independence for the most part during the last five decades. This entails that reluctance to defer sovereignty to supranational bodies such as the SADC secretariat remains sharp as national political masters still dominate policy making.

The national institutions play an important role in terms of health data management. All 15 SADC member national ministries of health have the responsibility of initiating national policies in this area. Within the various countries special institutions have been put in place to address specific health problems. This is the case with the various national councils that have been created to mainly provide responses to the HIV/AIDS challenge. Respecting data generation, various national health departments are tasked in doing this. In many respects, they work closely with national statistical bureaus. These national authorities have the task of compiling, managing and reporting the data collected from the various districts and provinces or regions of the various countries.

International cooperation partners equally play a role in all stages of data generation and management. The EU, the governments of the United Kingdom, Sweden, France and even the United States have programs in SADC that are meant to help some of the statistical offices in sourcing and using health data. Of great importance is also the role played by UN agencies, especially the WHO, UNAIDS, and UNICEF, among others. International NGOs—such as Médecins Sans Frontières, the International Federation of the Red Cross and Red Crescent, Save the Children, among others—are also critical in generating information on health for the various countries. The pieces of information generated often prove vital for national policy makers. Of relevance as well is the role played by national health-related NGOs. An important category of such NGOs is those that work on the concerns of persons living with HIV/AIDS. Such groups are vital in helping national authorities generate the relevant statistics as duly needed. Although SADC has relationships with and provides advice to

AFRO and the WHO, their role in providing region-specific input to these organizations is still limited.

Targeting: the poor and cross-border diseases

SADC has many health-related policy templates. However, it is not always clear whether the institution itself has the wherewithal, both politically and legally, to compel action from member states in instances of non-compliance. A good example is the license with which some member states handle the payment of dues. There are many policy plans developed by the SADC Secretariat that make references to the needs of the poor and the most vulnerable. The departure point for this is actually Article 5 on the objectives of SADC that regards one of the mandates of the organization as using regional integration to respond to the social needs of the most vulnerable. In many policy documents, such as the declaration on poverty eradication and sustainable development of 2008, attention is also placed on the concerns of the disadvantaged. Nonetheless, in the majority of the specific thematic and clustered declarations, policy plans and strategies, limited effort is made to really disaggregate data that refers to the socially disadvantaged. Beyond the data that covers HIV/AIDS at the national and regional levels, the documents do not reflect a committed effort in dealing with economic stratification. Most of the numbers reported are presented in an aggregated manner. In certain instances, cohorts are disaggregated in terms of age, gender and income brackets. But this tends to be exceptional as in the case of HIV/AIDS reporting where the age thresholds matter and are often cited.

The numerous policy documents that SADC has adopted in the area of health do not specifically target migrant cohorts. However, attention has been placed in many documents on diseases that cross borders easily, which has been the case of HIV/AIDS and tuberculosis. In both cases, SADC is seriously afflicted as it is a region where truckers freely move across borders and also where miners from other countries have traditionally migrated to work in the mines of the richer countries such as Botswana, Namibia and especially South Africa. Yet even in the case of HIV/AIDS and tuberculosis, the data that states report seldom discriminate and isolate the migrant cohort even if this group is often cited as a high-risk category. One of the reasons it is hard to take account of truckers and migrants who are constantly on the move is the difficulties of tracking their laboratory information. Solutions suggested in this respect such as those contained in the 2012 telehealth draft report could provide a panacea, but this will be hard to enforce as it may engender heated discussions and debates as to the legality of sharing such details across borders.

How does SADC support their member states?

As illustrated in the Figures 3 and 4, related to the Swaziland and Zambia cases, the international level (marked by WHO actions) and the local levels within the countries are very important in understanding how health data travels. There are many strategic framework documents that have been crafted to help SADC in coordinating the policies of its members in the area of health. In terms of capacity building in the area of health, SADC is often organizing seminars and training workshops geared at improving the quality of health data. The interaction of SADC with its member countries depends greatly on the mechanisms in place for data generation and compiling at the national level.

Discussion of findings

This article sought to examine global-regional-national data flows with the use of two pairs of case studies focused on UNASUR (Bolivia and Paraguay) and SADC (Swaziland and Zambia). While these regions differ in terms of epidemiological profiles and economic levels, important lessons can be drawn on how to support the development of evidence-based health policies in the countries.

First of all, although these bodies do not have databases to share information, they do generate important analyses and recommendations to support health decision-making in the regions. These regional bodies utilize data from the countries, but the extent to which they are directly sourced from the countries is questionable. This may be due to lack of quality data from the countries, limited country capacity or poor coordination mechanisms in place to collect this data.

The literature shows that due to cost constraints and limited organizational capacity, very few developing countries can maintain accurate death, birth or disease registries. Data directly generated by health care institutions are more easily available, yet this may not be representative of the entire population given that in these countries a minority of the population (usually wealthier and better educated individuals living in urban areas) can access services (Larson & Mercer, 2004).

The importance of a stable cohort of health officials with the relevant technical expertise has been widely documented (Sheirer, 2005), and these were found to be important weaknesses both in UNASUR and SADC. Specifically, in SADC, the reliance on external consultants for the collection and analysis of data weakens the establishment of capacity within SADC not only to process these data but also to formulate decisions based

on policy priorities as well as need. Given that there is evidence that officials are being trained already on data management, it seems the issue lies in small staff available for a growing workload.

On the other hand, there is no evidence that constant systems for data sharing exist between these levels with regional reports frequently citing UN agencies or other sources for information. This seems to reflect problems within the regional bodies themselves, exemplified by UNASUR itself lacking mechanisms to monitor the objectives proposed in their five-year plan (Garron et al., 2013).

The WHO regional offices seem to have more developed mechanisms to communicate directly with member states. This might be the result of the short life-span of these regional bodies or the result of the differing mandates of these offices, with the WHO offices firmly grounded as technical agencies that must liaise directly with ministries of health.

Both UNASUR and SADC already receive support from these WHO regional offices and are working toward improving their health information systems through these partnerships. In this sense, regional bodies must determine whether it is feasible to develop their own data collection mechanisms or if they can collaborate with already existing structures, such as those provided by the WHO. In the short term, this may result in the most convenient solution. Yet in the long term, in order to avoid becoming dependent on these technical agencies, the regional bodies should evolve to develop their own reporting mechanisms to support their work. At the same time, UNASUR's and SADC's expertise on their regions, as well as their proven interest in coordinating health issues, generates the potential for them to advise these international organizations on health issues in the future, establishing themselves as authorities in the field. While these bodies already interact with these global institutions, UNASUR's and SADC's technical advisory roles could be further enhanced to foster global level support for health activities conducted by their member states. In order to do this, these regional organizations could begin by focusing on specific issue areas where they can generate expertise, such as data that supports their goal of promoting health as a human right (Amaya et al., 2015). An important step toward that would be collecting good quality data and harmonizing it at the regional level. Given that these regional bodies already provide technical assistance to their member countries, making the most of the experiences of member states that have developed more advanced health information systems should be the starting point in this area.

In terms of addressing populations, these two regional bodies are committed to addressing social determinants of health and eradicating poverty. However, they are limited by country data that in order to stratify by income level or affected populations, requires more complex systems

for data collection than what is available in low-income countries. This may partly be due to the differing capacity of member states to report this type of data thus the decision to opt for cross-country comparable data. Lack of disaggregated data is problematic since it limits regional and country ability to identify and target key populations. In both regions, there are important efforts to distinguish between rural and urban populations, as well as gender, but this is not widespread across all indicators.

The importance of reaching disadvantaged populations has been recognized as an important measure of health policy success. Progress on the MDGs was considered to be uneven, not only between regions and countries but also between population groups within countries. For example, in 2011 only 53% of births in rural areas worldwide were attended by skilled health personnel, versus 84% in urban areas (United Nations, 2013). Post-2015 discussions have focused on how to build on these gains through a sustainable development approach that seeks to reach those being left behind.[36]

Conclusion

Within an increasingly complex global health system, there is a greater role for regional organizations to support countries in the development of coherent health policies and as an interface between the national and global levels. UNASUR and SADC have the potential to provide adequate mechanisms for knowledge translation, yet they are still lagging behind in their ability to collect and manage country information in coordination with their member states. Having greater access to quality and reliable data would greatly support their focus on addressing social determinants of health and reducing poverty in their countries. Making these data available and visible greatly enhances the ability of other stakeholders to demand that these issues be addressed at the regional and national levels.

Our findings show that regional organizations interact and mediate with multiple institutional levels and these collaborations, in this case through information sharing, not only help address health threats but also strengthen the membership among the organization and their visibility to the outside world. In the examples of UNASUR and SADC, we can see how these groupings have been moving toward greater incidence in negotiation efforts between their member states as well as with other global actors, through what we can describe as regional health diplomacy.

The role of the regional organizations should thereby be seen as having both a vertical and a horizontal dimension. Vertically, they can play a role in translating global goals, such as the Sustainable Development

Goals (SDGs), into regional and national targets and mobilizing resources to reach these goals. They can also play a role in statistical harmonization, development and quality control, and data gathering and consolidation between the national and global level. Horizontally, they can contribute to better evidence-based policy coordination and provide data and policy support for cross-border policy challenges (health situation of border populations, border-crossing diseases, health infrastructure in border regions, etc.).

Although the South American and Southern African regions are unique, these lessons are relevant for other nascent or developing regional bodies in supporting their work with their member countries around the use of information to support policy-development. Furthermore, reducing poverty and improving health within regions requires not only effective use of information but also the political will of these bodies to address these issues. The opportunity afforded by the SDGs and the rising influence of regional bodies must be seized toward improving health, especially among the poorer strata of the population.

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El papel de la diplomacia regional en salud en el intercambio de datos

Los casos de la SADC y la UNASUR

Ana B. Amaya, Stephen Kingah, Philippe De Lombaerde

Resumen: La gobernanza de la salud se ha convertido en una gobernanza multi-nivel, resultado de la descentralización, integración regional y aparición de nuevos actores nacionales e internacionales. Aunque esto ha mejorado la capacidad de respuesta en materia de salud mundialmente, esta complejidad plantea desafíos para la gobernanza de la salud, diplomacia en salud y elaboración de políticas. Este artículo se centra en uno de estos retos: la organización de flujos de información estadística en y entre los niveles de gobernanza, y el papel emergente de las organizaciones regionales en este ámbito. Se analizan los flujos de datos entre regiones y países mediante dos estudios de casos en UNASUR (Bolivia y Paraguay) y SADC (Suazilandia y Zambia). Los resultados del análisis arrojan recomendaciones de política regional y nacional.

Palabras clave: diplomacia sanitaria regional, intercambio de datos, organizaciones regionales, SADC, UNASUR

Le rôle de la diplomatie régionale de la santé dans le partage des données

Les cas de la SADC et de l'UNASUR

Ana B. Amaya, Stephen Kingah, Philippe De Lombaerde

Résumé : La gouvernance en matière de santé est devenue multi-niveaux comme résultat combiné de la décentralisation, de l'intégration régionale et de l'émergence de nouveaux acteurs nationaux et internationaux. Bien que cela ait renforcé la capacité d'intervention sanitaire dans le monde entier, cette complexité pose également de sérieux défis pour la gouvernance de la santé, la diplomatie et l'élaboration des politiques. L'article se concentre sur l'un de ces défis, à savoir l'organisation des flux d'informations statistiques à l'intérieur et entre les niveaux de gouvernance, et sur le rôle émergent des organisations régionales. Les flux de données régionales et nationales sont analysés à l'aide de deux études de cas portant sur l'UNASUR (Bolivie et Paraguay) et la SADC (Swaziland et Zambie). Les résultats de l'analyse ont conduit à plusieurs recommandations de politiques.

Mots-clefs : diplomatie régionale de la santé, organisations régionales, partage de données, SADC, UNASUR.