

ORIGINAL RESEARCH

From instinct to evidence: the role of data in country decision-making in Chile

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Background: The Chilean health system has undergone profound reforms since 1990, while going through many political upheavals, and faced demographic, health, and economic transformations. The full information requirements to develop an evidence-informed process implied the best possible use of available data, as well as efforts for improving the information systems.

Objective: To examine, from a historical perspective, the use of data during the health reforms undertaken in Chile since 1990, and to identify the factors that have determined its utilization and improvement.

Design: A qualitative methodological approach was followed to review the case study of the Chilean experience with data on decision-making. We use as the primary source our first-hand experience as officials of the Ministry of Health (MOH) and the Ministry of Finance during the reform period considered. Second, a literature review was conducted, using documents from official sources, historical accounts, books, policy reports, and articles about the reform process, looking for the use of data.

Findings: The Chilean health care reform process was intensive in utilization and production of information. In this context, the MOH conducted several studies, from the burden of disease, efficacy of interventions, cost-effectiveness, out-of-pocket payments, and fiscal impact to social preferences, among others. Policy and prioritization frameworks developed by international agencies influenced the use of data and the studies' agenda.

Conclusions: Health systems in Latin America have struggled to adapt to changing health needs caused by demographic transition and economic growth. Health reforms in Chile provide lessons of this sustained effort, based on data and scientific grounds, with lights and shadows. Tradition, receptiveness to foreign ideas, and benchmarking with international data determined this approach, facilitated by the political influence of physicians and other technocrats. Besides, internationally comparable statistics are shown to play a significant role in policy debate.

Keywords: *health system; health reform; health care; AUGE; priority setting*

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Introduction

This article is a case study of the development of a culture of data use and evidence-informed policy-making over several decades in Chile when it went through many major political upheavals and faced demographic, health, and economic transformations. The article examines the use of data during the health sector reforms undertaken in Chile from 1990 to the present day. It analyses its context, from a historical perspective, and attempts to identify the factors that have both determined data improvement and facilitated its use. In the Chilean case, tradition, receptiveness to foreign ideas, and benchmarking with international

indicators shaped the use of data, assisted by the political influence of physicians, and later other technocrats. The long-term political driver in decision-making has been the pursuit of equity, except for Pinochet dictatorship.

This article is organized as follows: first, design and methods are presented. Second, findings, including by context of the health system in Chile, a short history of political drivers of better data for decision-making current use of data for health decision-making, particularly the influence of burden of disease estimates on national policy setting and the extensive role of country data on health reforms. Third, discussion: uses of global and domestic

estimates. Fourth, conclusion: how to build capacities for data collection, analysis, and interpretation for policy-making.

Material and methods

This article uses a qualitative methodological approach for undertaking a case study of the Chilean experience with data on decision-making. As primary sources of information, we use our first-hand experience as officials of the Ministry of Health (MOH) and the Ministry of Finance, during health reform policy formulation and later discussion in Congress.

Second, the methodological strategy included a literature review, considering official sources from the MOH, the World Bank, and the Chilean National Library of Congress, as well as several books, historical accounts, and policy reports documenting the health policy-making in Chile during the 20th century. Furthermore, the review was complemented with a systematic Medline search using the terms ‘Health Care Reform [MESH] and Chile [MESH]’ and ‘Chile [MESH] and AUGÉ [all fields]’ (72 and 15 articles, respectively). From the resulting items, only those describing health reforms were finally considered, looking specifically for the use of data for decision-making.

Findings

The health system in Chile: context

Chile has a population of nearly 18 million people, 81 years of life expectancy at birth, and high per capita income (US\$ 23,564 ppp in 2015); however, the inequality remains one of the greatest challenges for the country (1–3). Health insurance coverage is high (98%), but structurally segmented, resulting in low-income and high-risk populations being treated mainly in an overloaded and underfunded public system, based on social justice, while the private system treats high-income and low-risk population, based on market justice. Both systems significantly differ in available resources, services utilization, and user satisfaction (3–5).

Although total health expenditure has increased, Chile has one of the lowest figures of total health spending among OECD countries. It shows a low proportion of public expenditure on health (<50% of total health expenditure) and is second only to the USA regarding the share of private financing, mainly the result of ‘out of pocket payment’ by individuals. According to the OECD, health financing in Chile remains inefficient and inequitable (6, 7).

A short history of political drivers of better data for decision-making

Chile has a long tradition of collecting and publishing national statistics. In 1843, it established a statistical

service and enacted the population censuses law (8). In the context of the Latin American region, there was an early organization of both health system and social security. Key milestones were the creation of ‘Mutual Aid Societies’ in the middle of the 19th century; the organization of the National Public Welfare Commission in 1877, a national coordination of charities, and the enactment of the Workers’ Compulsory Insurance Fund Law in 1924 (9, 10).

It has been suggested that European liberal ideas greatly influenced the development of a medical culture with a deep interest in social problems, which furthered social policies in health. Indeed, liberal trade and openness during the war of independence (in early 19th century) allowed the unrestricted arrival of many European physicians, especially from the UK and France. With high professionalism and social prestige, they influenced the creation of the medical school, with a positivist approach based on evidence and scientific rigor. In the late 19th and the early 20th centuries, several physicians served as congressional representatives or were cabinet ministers in different executive branches. They combined a scientific, data-driven approach with a strong policy commitment to change. They were instrumental in the creation of the Hygiene Institute (1892), the enactment of the Sanitary Code (1918), the Workers’ Compulsory Insurance Fund Law (1924), and the creation of the MOH (1924) (11–13).

An early example of health policies based on a ‘scientific approach’ was the enactment of the ‘Mother-Son Law’ in 1936, which intended to reduce infant mortality and prevent the causes of disease and premature disability. The Minister of Health at that time, Cruz-Coke, was a prominent physician, scholar, and leading researcher. At the beginning of his administration, he commissioned several studies to support effective evidence-based policies. He also enacted the ‘Preventive Medicine Law’ in 1938, which enforced periodic screening tests to detect and provide prompt treatment to priority health problems – tuberculosis and syphilis. His surveys and data analysis provided evidence of the burden of avoidable morbidity and mortality among the working class, due to the lack of access to health care. Later, Cruz-Coke was elected to Congress from the Conservative Party. He unsuccessfully ran for presidential election in 1946, remaining in the Senate for several years (14–17).

The single most significant development was Salvador Allende’s book *La Realidad Médico-Social Chilena* (The Chilean Socio-Medical Reality, 1939), which offers an outstanding example of the use of national data along with global comparative analysis to underpin a health policy proposal. The book was a real manifesto of social epidemiology, and it is considered the starting point of the Social Medicine movement in Latin America (18, 19).

Allende – Minister of Health between 1939 and 1942 – describes the situation of a country in which 73% of the

population lived in poverty. The infant mortality rate was 250 per 1,000 live births, almost the highest recorded in the world at that time; only half of the children born each year would live beyond the age of 10, very different from what we see today, where infant mortality rate is slightly over 7 per 1,000 live births. Chilean society showed marked structural inequalities, which were exacerbated by the 1939 Chillan earthquake (18).

According to Waitzkin, in his book Allende conceptualized illness as a disturbance of the individual fostered by social deprivation, a vision deeply influenced by Virchow's views about the social determinants of health (20). Allende defines and analyses the priority health problems based on mortality statistics, highlighting maternal and infant mortality, tuberculosis, venereal diseases, emotional disturbances, and occupational illnesses. Compared with other countries, in 1939 the risk of premature death among Chileans was at least double than that of Uruguayans, Argentines, and Colombians. National data provided a picture of the living conditions of the working classes that generated high levels of mortality and morbidity. Allende concluded the book with the MOH's proposals for health improvement that emphasized social change rather than medical interventions, such as income redistribution, a national housing program, and industrial reforms, which would be made viable through land reform and the nationalization of natural resources, among other measures (18, 20–22).

Consequences of the earthquake contributed to the sense of urgency around the need to unify and reform the health and social security systems created in the past decades. Then in 1941, Allende sent a bill to Congress to implement a health system based on socialized medicine. Ten years later, the law was enacted, with significant changes, creating the National Health Service (NHS), the first in the Americas to guarantee universal health care (Law 10,383 of 1952) (20, 23).

The NHS, which operated through a countrywide network of facilities, had a profound impact on health indicators, showing a sharp decline in tuberculosis mortality and a progressive improvement of maternal and child indicators (10). However, during the period of military dictatorship (1973–1989), the NHS was restructured following neoliberal principles that sought to reduce the role of public institutions and create competition both in health care and health insurance market (24, 25). Health expenditure was sharply reduced, with no investment in hospital infrastructure for 17 years. Primary care level expansion was maintained; however, it devoted mainly to maternal and child health problems.

Contemporary use of data for economic, social, and health decision-making

During Pinochet's dictatorship, a comprehensive national health information system existed, collecting demographic,

epidemiologic, and health resources utilization data. In addition, due to political emphasis on efficiency and targeting to alleviate extreme poverty, the government created the 'Socio-Economic Characterization Survey' (known by its acronym CASEN), a periodic household survey to assess social spending. The health questionnaire served to evaluate targeting of government aid, in cash transfers and services (14, 24). Nevertheless, there was little practical use of this data for health situation analysis or health needs assessments, while financial analysis was the primary planning activity.

At the time of the restoration of democracy in 1990, the health system was in a deep crisis caused not only by the lack of resources but also by inefficiency in service delivery, related to distortions of health financing mechanisms (26). The lack of complementarity among different levels of care, as well as an inadequate response to changing health needs associated with the demographic transition, was a critical problem. Government policies favored primary health care and private sector, neglecting the modernization and maintenance of public hospitals. Cardiovascular diseases were the leading cause of death since 1970, but the priority in spending was maternal and child health and communicable diseases; an enormous unmet demand for specialists' care and tertiary hospitalizations existed (26, 27).

This was the context within which the democratic government initiated a health reform, with financial and technical assistance from the World Bank, aiming to improve effectiveness, efficiency, and quality of health services rendered, particularly to poor people.

It was necessary to conduct several studies, covering all components of the health system. The findings of these studies led to the reorganization of the MOH and change of payment methods. In parallel, a new health care model was implemented, including investments in new ambulatory facilities, designed to deliver secondary and tertiary services (26, 28).

However, this reform maintained the structural design inherited from Pinochet's dictatorship. As a result of the introduction of market justice in social health insurance during the 1980s, the health system became highly segmented, a strong determinant of inequality in access to health care. The later government had other significant challenges in the early 1990s: restoration of democracy and demonstration of good governance. There simply was no political ground for structural changes in the health sector, and there has not been so far.

Influence of burden of disease estimates on national policy setting

In 1993, the World Bank published its controversial 'World Development Report: Investing in Health', which proposed basic packages of health interventions, based on the estimation of the burden of disease and

cost-effectiveness (29). Influenced by these ideas, the Minister of Health – an economist – decided to carry out a local estimation of DALY, based on the national empirical data rather than the earlier statistical models used by the World Bank. This burden of diseases study was the third in Latin America, after Mexico and Colombia. Chilean professionals from the MOH worked on it, with direct technical assistance from Harvard University. In parallel, the MOH also conducted an assessment of social preferences in health, using qualitative research methods. Both studies were designed to support decision-making for prioritizing investments in health (30, 31).

Since its introduction, there were many criticisms of DALY not only because of its complexity but also because of ethical controversies around the use of parameters, such as the differential societal value of individuals at different ages, the disability weights, and discount rate (32). This controversy was not different in Chile. However, DALY evidenced for the first time in Chile the importance of leading causes of disability, such as depression, substance abuse, and musculoskeletal disorders, which helped to validate the use of the indicator (Fig. 1) (31, 33). The burden of diseases study results had a profound impact on reorienting health policies, especially towards mental health (34).

Subsequently, the MOH performed the first study of health interventions cost-effectiveness, using cost per DALY averted. All these initiatives were instrumental in institutionalizing epidemiological analysis capacities within the MOH.

Using DALY and cost-effectiveness studies, the MOH proposed a first model for prioritizing health interventions, adapted from Bobadilla’s work, which would be used later to define health priorities for the new health reform in 2000 (Fig. 2) (33). One shortcoming of this approach is the conflict between cost-effectiveness and equity, both vertical and horizontal (35).

Health inequality between population groups and access to health care were also a focus of attention during this period. Main topics were the impact of the

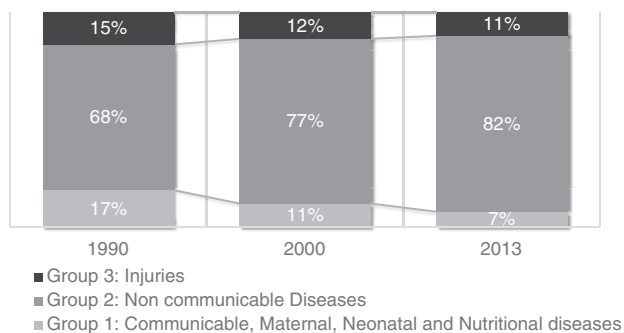


Fig. 1. The burden of diseases and injuries, Chile 1990–2013. Source: Authors, based on Institute of Health Metrics and Evaluation, Washington University, 2013.

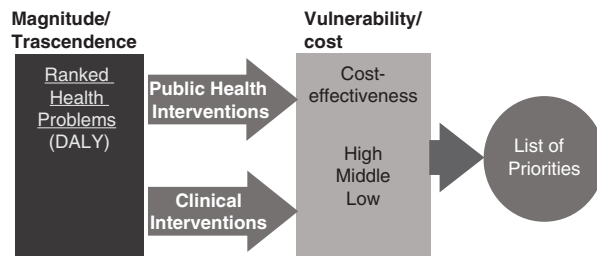


Fig. 2. Proposed algorithm for the prioritization of health interventions. Source: Ministerio de Salud de Chile, Los Objetivos Sanitarios para la Década 2000-2010 (39).

social determinants of health, geographical inequality in the burden of diseases, and the mismatch of the health system to the priority needs. Despite increased investment during the 1990s, at the end of the decade, the public health system still lacked resources to address the new health priorities. Therefore, the private–public gap remained as a significant equity concern (36, 37).

In an early attempt to address inequality in access, the public insurance introduced a mechanism, known as the ‘program of complex services’, to prioritizing benefits based primarily on cost and waiting lists, instead of epidemiological criteria.

Extensive role of country data in Regime of Explicit Health Guarantees (AUGE)

In 2000, a new cycle of health reforms began in an attempt to reduce inequities. The Chilean government implemented an innovative second-generation health reform, whose central focus was recognition of the right to health (38). It made extensive use of domestic data and studies. The government undertook the reform without technical or financial support from donor agencies.

The first step was the definition of health objectives for the 2000–2010 decade (Fig. 3). It provided strategic direction for all the different actors involved in health reform as well as established a baseline to evaluate the impact of the reform (39). Two aspects are worthy of attention. The first included a specific objective on

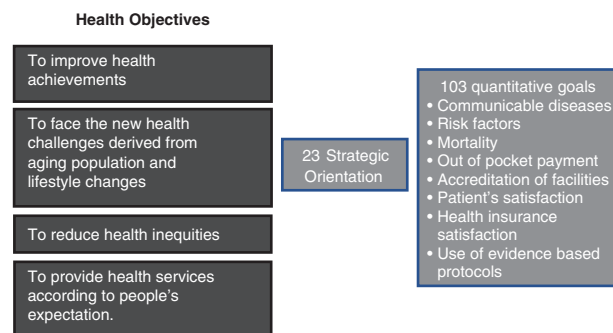


Fig. 3. Four health objectives for the 2000–2010 decade. Source: Ministerio de Salud de Chile, Los Objetivos Sanitarios para la Década 2000-2010 (39).

people's expectations of the health system (out-of-pocket payments, responsiveness, and quality of services), influenced by the World Health Report 2000 conceptual framework. The second aspect was the explicit priority setting, based on DALY and cost-effectiveness. The proposal was broadly discussed and approved, during public hearings, by several professional and non-governmental organizations, including representatives from the health industry (39).

The primary instrument for achieving health goals was the creation of a regime of explicit health guarantees (known by its acronym AUGE) for prioritized health problems, which resulted in law 19.966, 2004 (40). The law mandates public and private insurers to provide coverage for the diagnosis, treatment, and follow-up of 80 health problems. Priority setting for these health problems used three criteria: 1) priority diseases, as were defined in the health objectives of the decade, 2) the existing interventions already covered by the public insurance through 'program of complex services', and 3) social preferences, including the use of the 'rule of rescue' – the imperative people feel to rescue identifiable individuals facing avoidable death (41, 42). High burden of disease and social preferences captured 88% of the selected conditions for AUGE (43).

To operationalize this mandate, the law sets four guarantees: 1) access (i.e. who is eligible?), 2) timely access (i.e. maximum waiting times), 3) financial protection (i.e. maximum copayments and deductibles), and 4) quality (i.e. accreditation of facilities and professional certification). It is the responsibility of the medical insurance providers, whether public or private, to comply with these guarantees. AUGE establishes the mandatory health coverage for all individuals, regardless of their levels of contribution. This feature is considered one of the main achievements of the reform (4, 27, 40). It was the first example of a rights-based social guarantee in Latin America that provides operational definitions of health care entitlements (44).

Before the reform, the Chilean Constitution only stated second-generation rights regarding health care. The jurisprudence considers these as a mere statement of intention, and therefore the state, and the courts are not obliged to enforce them, except for the right to choose the health system, either public or private. Presently, AUGE constitutes the core of the constitutional right to health, which might be enforceable in compliance with both the reform law and the Constitutional mandate (44–46).

The AUGE law sets a schedule of mandatory technical, epidemiological, and economic studies that support decision-making for updating the priority list every 3 years (Box 1). The implementation of the regime also requires developing clinical guidelines for each health condition to standardize diagnosis and treatment.

Box 1. Procedure for defining guarantees (GES Regulation, Decree No. 121, 2005)

AUGE law (19,966) defines the procedure for the prioritization of problems to be incorporated to the regime of explicit guarantees. The complete cycle considers the following steps:

1. Definition of the budgetary framework by the Ministry of Finance.
2. Technical health and economic studies to prepare a list of health problems with effective interventions associated (diagnosis, treatment, or rehabilitation). This includes burden of disease, social preferences, efficacy of interventions, and cost-effectiveness of interventions studies.
3. Prioritization of health problem, using the following criteria: magnitude of the problem, importance of the problem (qualitative), effectiveness of Interventions, and feasibility of implementation of interventions. The final criterion considers cost and supply capacity in the health system. Also is mentioned the financial burden on households.
4. Determine the average expected cost, which requires the measurement of both cost to deliver each intervention and potential demand. The maximum co-payment for users of public and private insurance is also defined in this phase (Financial protection).
5. External verification of the cost by an independent party, to ensure that the proposal does not exceed the budgetary framework defined in step 1.
6. Consultation to Advisory Council, comprised of independent professionals representing the faculties of medicine, economics, chemistry and pharmacy, the Chilean Academy of Medicine, and representatives of the president. This checks the consistency of the proposal.
7. Final drafting of the decree and its enactment.

New epidemiological and statistical tools were developed to monitor the outcome and impact of the reform. The MOH implemented the 'AUGE Information System', which oversees the compliance with the four legal guarantees. In addition, a national health survey – with biomarkers – was implemented along with two other surveys on quality of life and patient satisfaction and health spending. Lastly, health questions of the CASEN household survey were adapted to measure access and utilization of health services, AUGE use and perception, allowing to disaggregate data by relevant social variables.

Even before its enactment, AUGE law was the target of severe criticism. One of the earliest and more relevant reproaches was the risk of neglect of non-priority health

problems, whose waiting lists have worsened, despite interventions made to reduce it (47, 48).

The entitlement to timely access obliges health insurers that exceed the maximum waiting time to purchase health interventions outside their network. In practice, FONASA (the public insurer) has been unable to fully comply with due to public facilities shortages of specialists, hospital beds, and technology. Thus, the public sector has been increasingly purchasing services from private providers, leading to rising costs and reinforcing underfunding of public health providers. Clearly, AUGE has been unable to overcome the problems generated by a segmented system of income and health status (49).

On the other hand, after 10 years of implementation, the reform has shown benefits in access and health impact. Utilization of health care services among the Chileans has increased, although gaps among the rich and the poor remain (50). The expanded access with new protocols improved the treatment of acute myocardial infarction in public hospitals, accelerating the decline in mortality rate (Fig. 4) (51). There is also evidence of increased coverage and mortality reduction for diseases, such as hypertension, diabetes, stroke, and cervical and gallbladder cancer (47, 52). Finally, Chileans have highly valued AUGE in every study and opinion polls since its implementation (53).

Discussion

Uses of global and national estimates

In Chile, national data are used for decision-making and health policy design; global estimates are used for comparative purposes. They serve to benchmark progress and identify areas with improvement potential. Also in the absence of national data, it is customary to use global estimates, such as the case of rare diseases.

The World Health Organization (WHO) traditionally considers Chile among countries with reliable statistics

(54, 55). Discrepancies between national figures and estimates produced by the United Nations agencies for the health sector have occurred rarely, and the local authorities have resolved them by providing credible evidence. For example, WHO estimated that the prevalence of smoking in adult Chileans was higher in women compared with men. The country demonstrated the opposite, based on results of various survey, which was accepted by WHO.

In 2010, Chile joined the OECD. This has involved a challenge for national statistical systems, which have had to harmonize with its standards. In practice, the accession to the OECD has meant changing the tradition of benchmarking progress against other Latin American countries. Thus, Chile, which had long been used to its position as the best performing in health in the region, suddenly found itself classified among the worst performers among members of the OECD (5, 7, 56). This challenge has fueled debate in the academic and political environment and shows the potential impact of cross-country benchmarking based on sound empirical data.

In this context, the main tasks of the national health information system are to improve the opportunity of data, incorporate quality of care indicators, and provide disaggregation to monitoring equity in health coverage. Currently, different surveys allow us to disaggregate data by gender, socioeconomic status, and minority groups; however, this is not the case for administrative registries. In a previous study, about universal health coverage (UHC) in Chile, we described the shortcomings of the MOH registries, which impede to assess equity in health coverage for many public health programs, such as vaccination, TB, HIV-AIDS, ante-natal care, and healthy child control (4).

There is an ample window of opportunity to improve Chilean health system performance through the use of both national data and international benchmarking.

Conclusion

How to build capacities for data collection, analysis, and interpretation for policy-making

The struggle to adapt health services to changing health needs is one of the primary challenges for many low- and middle-income countries. During the past decade, Chile opted for a data-driven priority setting and rights-based approach in health reforms, providing entitle access to priority diseases' health care. In support of this process, the MOH strengthened its information systems and created new tools to monitor results, illustrating a path to follow for other countries. However, it did not change the structural conditions of the segmented health system, which is a common condition in many Latin American countries. The Chilean example shows some gains in health status but a persistent inequality in access to

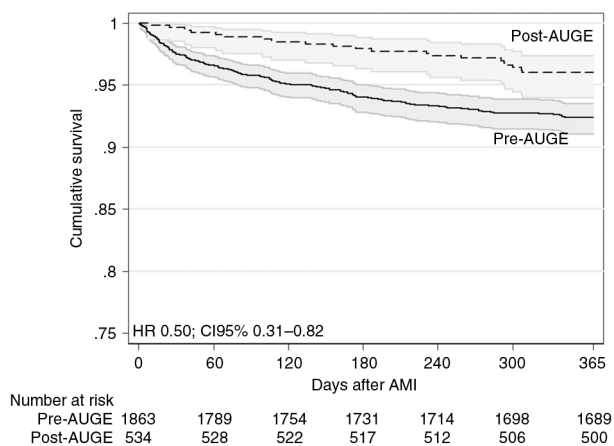


Fig. 4. Acute myocardial infarction survival in Chile, comparison pre- and post-AUGE implementation. Source: Nazzal et al. (51).

health care. It is also an example of what Schuftan describes as ‘being sucked into dreaming that technical solutions in public health would right the wrongs’ (57). Nevertheless, it proves that it is possible and worth to allocate scarce resources to the most critical health needs and cost-effective interventions.

Some factors persistently appear throughout the history to be associated with using data in decision-making. Among them are the openness to foreign influences, first derived from the arrival of European doctors, with liberal ideals, and afterwards the international comparative analysis as an element of judgment about the national situation. It is also important to acknowledge the importance of policy and prioritization frameworks developed by international agencies.

In Chile, doctors have been influential political players in making health policy decisions, adopting a positivist, data-based approach, which is currently assumed by economists. The definition of inter-ministerial work teams, addressing health problems from health, economic, and

political perspectives, has helped maintain a tradition of making decisions based on the use of data in the health sector. As the backbone of policy development, there is an ongoing need to confront structural inequalities, a feature of Chilean society we have failed to remedy (58, 59).

The use of studies and national data starting during the 1990s and in the reform of 2005 give an impression of continuity in the line of thought, but in practice, the systematic adoption of evidence-informed policy and prioritization proceeded patchily (Fig. 5). Data availability catalyzes reform, and at the same time the reform strengthened health information system and posed new demands on it. There was not a planned connection between the studies of the 1990s and the health reform that began in 2000 and resulted in AUGE law. The authorities belonged to the same political coalition, but with different perspectives about the health sector.

We sustain that the burden of diseases and cost-effectiveness studies were used because some technical

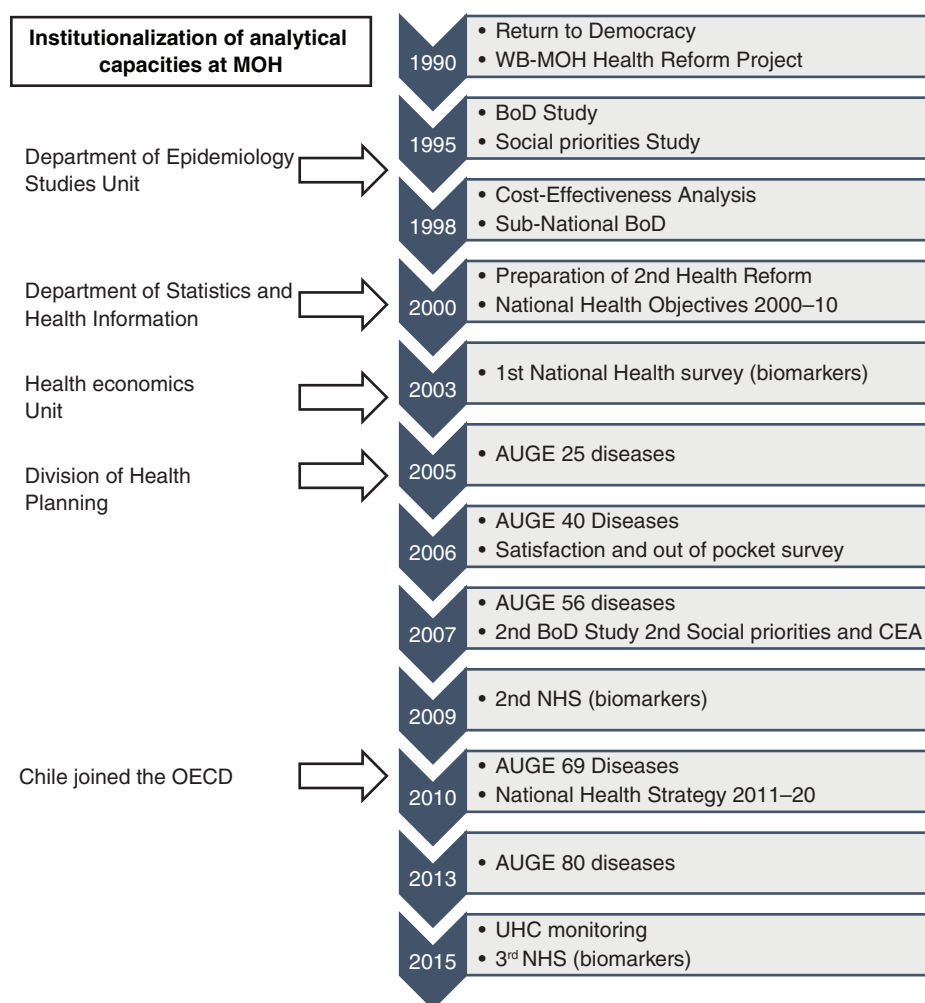


Fig. 5. Timeline the role of data in decision-making in Chile: from 90s health reforms to Explicit Health Guarantees (AUGE).

teams that worked on them were at MOH during both periods. As mentioned earlier, the studies were not intended to implement a system of enforceable rights for priority diseases. They were carried out to support investment decision in health care infrastructure and medical equipment. However, the health authorities responsible for the 2005 reform saw that those studies could give them a technical substrate to prioritization.

Having human resources capable of generating and analyzing information is certainly a necessary condition for the use of data in decision-making, but it is not a sufficient one. The authorities can make decisions with or without data; therefore, the technical experts and statistical analysts have the responsibility to provide the best information available in a timely and understandable manner.

It is also important to have budgets to support operational research aimed at solving specific problems of the health system, which enables the creation of links between academia and government.

The Chilean experience shows that the availability of technical expertise in the MOH facilitated the use of national data in decision-making processes of reforms from the 1990s onwards. However, the maintenance of such capacities can never be taken for granted and requires constant vigilance. Job instability and career shortcomings discourage retention of professionals in the public service and also threaten the political independence of health information system.

Despite these problems, the country has maintained the discipline of decennial health plans; the last is the national health strategy 2011–2020 (60). Also, recent initiatives such as the law for high-cost diseases have defined a funded mechanism based on the best evidence to support decisions (61). One area that requires further development is to increase the use of data and evidence in the management of health care services.

Finally, global commitments, such as UHC or sustainable development goals, play a major role in mobilizing political will to invest in information systems and generate evidence for decision-making. Transparency in data handling by agencies such as WHO and making countries accountable for international commitments are strong incentives for resource mobilization for capacity building in data capture, analysis, and use.

Chile's experience with international estimates, particularly in the 1990s, shows how these can have in-country influences even though national estimates take precedence in local decision-making. The global progress in methods to provide comprehensive estimates of the burden of disease led to advances in analyses in Chile, with international technical support, and influences domestic analytical work. Also, internationally comparable statistics are a valuable input to the policy debate.

Authors' contributions

All authors made substantial contributions to the conception or design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content. All authors read and approved the final manuscript to be published. All authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Paper context

Health systems in Latin America have struggled to adapt to changing health needs caused by rapid demographic transition and recent economic growth. The new health priorities – non-communicable diseases, addictions, and violence – are added to the maternal and child health and infectious problems, still not fully resolved. Health reforms in Chile, since the 90s to date, provide lessons from a sustained effort to adapt, based on data and scientific grounds, with lights and shadows.

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