

**Health Information
System of the National
Health System**

Health Information System of the National Health System.

Health Information Institute.

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Introduction

The Spanish Constitution recognizes the right to health protection of all citizens, while designing a new territorial organization of the state that allows the assumption by the autonomous regions of responsibilities for health, but keeping a state reservation for the regulation of bases and general coordination.

General Health Act 14/1986, April 25th, responded to these constitutional provisions, setting out the principles and substantive criteria which allowed the National Health System configuration. Furthermore, the Act created the NHS Inter-territorial Board as a coordinating body between the autonomous regions and the Central Government.

Although their decentralized responsibilities, the NHS should function in a harmonious and cohesive manner to ensure that access and health care for all citizens are made under effective equal terms and policy Health is aimed at overcoming geographical and social imbalances.

The cohesion of the system must stand, among other strategies, in establishing relation means and systems to make available at all levels the information needed to determine the degree of achievement of its objectives and, thus, facilitate decisions of health authorities in the exercise of their responsibilities. These systems must be configured under the principles of consensus, cooperation and flexibility.

In this sense, General Health Act 14/1986, includes among the actions to be taken centrally, those relating to the establishment of health information systems and implementation of general interest transnational statistics. This is compounded by the general reporting on public health and health care and the establishment of means and instruments of relationship to ensure communication and information exchange between the Central Government and the autonomous regions.

Similarly, the Cohesion and Quality of the NHS Law 16/2003 establishes, as a collaborative field, the Health Information System for the National Health System whose development corresponds to the Ministry of Health and Consumer Affairs¹, which must ensure the availability of information and communication exchange between health authorities. To do so, the purpose and content of information must be agreed within the Inter-territorial Board.

¹ Actualmente Ministerio de Sanidad y Política Social

Under these circumstances, the Health Information System has to meet the needs of the following groups:

a) Health Authorities: The information will encourage the development of policies and decision making, giving updated and comparative information of the situation and developments in the National Health System.

b) Professionals: Information will aim to improve their knowledge and clinical skills.

c) Citizens: The information will assist in improving self-care and health services utilization and knowledge of proper operation.

d) Organizations and associations in the health field: Information in order to promote civil society participation in the National Health System.

The Information System is therefore one of the key elements to meet current and future challenges resulting from our organizational reality and the demands posed by the three major stakeholders that comprise the Health System. First, citizens who are better informed and, therefore, are more demanding with respect to health care which also leads to greater demand for services and a growing expense. Secondly, professionals are increasingly aware in the management and quality of services provided. Finally, health administrations, in a context of limited resources, should strive for efficiency and quality in its goal of achieving a good level of health, satisfying simultaneously the expectations of citizens and professionals.

Health information system must evolve from traditional independent and descriptive data operating models to a system that allows processing information in an integrated way and, therefore, **generate knowledge**, so that the National Health System can be positioned advantageously to meet the demands of the society it serves and overcome the threats that limit their proper development.

It must provide an **effective service to the autonomous regions** for the management of health services and gain **recognition from all sectors** that compose the National Health System and from society itself.

1 Framework for development

1.1 Background

The Ministry of Health and Social Policy (formerly the Ministry of Health and Consumer Affairs) has maintained throughout its existence, a wide range of state-level health statistics, has issued numerous reports on different aspects of health and healthcare and established means and instruments of relationship between the Central Government and the autonomous regions. Likewise, the Ministry of Health and Social Policy has added 19 statistical operations to the National Statistical Plan.

The information now being generated in the Ministry is divided into 12 separate centers of responsibility among Directorates-General, Subdirectorates-General, Agencies and Institutes.

Each unit of the Department produces and maintains the information subsystems directly related to their area of responsibility, which means data validation by the expert unit and allows simultaneous management of information tailored to the developmental needs of their activity.

While some of these statistics are recently added, most of them were available when designing the Health Information System, of which we could obtain abundant data on health status, health resources, activity, spending and some results. The information system was specifically designed as a statistical operations index, mostly descriptive and independent of each other, besides having certain thematic gaps, had no common standards for integration and analysis of such information between them. Therefore, while it was able to provide a large amount of data they had limited utility for monitoring the status and evolution of the National Health System from an integrated approach to the elements that determine its trajectory.

Since its foundation the Inter-territorial Board, has held various technical groups to encourage participation of the autonomous regions in the development of these statistical operations. In November 2000, and in order to cover all of them in a unified way, it was agreed to establish the Subcommittee on Information Systems with the task of building an integrated system. But it was not until the promulgation of the Cohesion and Quality of the NHS Law 16/2003, when this task was undertaken effectively.

Health sector information currently available at the Ministry of Health and Social Policy according to the centre in charge

SECRETARIAT-GENERAL OF HEALTH

NATIONAL HEALTH SYSTEM QUALITY AGENCY

Health Information Institute

Health Barometer

NHS protected population database (Health card)

NHS Primary Healthcare Centres Catalogue

National Catalogue of Hospitals

European Health Survey (In collaboration with INE)

Spanish National Health Survey

Statistics on Health Establishments providing Inpatient Care (ESCRI)

Minimum Basic Data Set - Hospitalization (CMBD)

Health Indicators

Basic Index of Statistics and Health Information Systems of the autonomous regions (REBECA)

National Health System Primary Care Information System

NHS Waiting List Information System (SISLE-SNS)

DIRECTORATE-GENERAL FOR PUBLIC HEALTH AND FOREIGN HEALTH

Subdirectorate-General for Health Promotion and Epidemiology

National Statistics on Blood Transfusion Centres

Voluntary Pregnancy Terminations

Coordination Centre of Alerts and Health Emergencies

Systematic Vaccinations

Subdirectorate-General for Environmental Health and Occupational Health

Quality of bathing waters

Quality of water for drinking and public consumption

Pesticide registry (biocides)

D.G. FOR PROFESSIONAL REGULATION, NATIONAL HEALTH SYSTEM COHESION AND HIGH-LEVEL INSPECTION

Subdirectorate-General for Economic Analysis and Cohesion Fund

Public Health Spending Satellite Accounts

DIRECTORATE-GENERAL FOR PHARMACY AND HEALTHCARE PRODUCTS

Subdirectorate-General for the Quality of Medicines and Health Care Products

Pharmaceutical consumption via NHS medical prescriptions and civil servants mutual funds

Pharmaceutical expenditure in public hospitals of the National Health System (planned)

SPANISH AGENCY FOR MEDICINES AND MEDICAL PRODUCTS

Authorised medicinal products

Medicinal plants

Active substances in Spain

Cosmetic products

Narcotic and psychotropic drugs (legal traffic)

NATIONAL TRANSPLANTS ORGANISATION

National Catalogue of Centres for Removal and Transplant of Organs, Tissues and Bone Marrow

Statistics on Donation Activity, Processing and Transplantation of Tissues and Cells

Statistic on Donation Activity and Transplants

Statistic on Centres for Removal and Transplant of Organs, Tissues and Bone Marrow

Registry of Centres for Extraction and Implant of Organs

Registry of Centres for Extraction, Processing and Implant of Tissues and Cells

SECRETARIAT-GENERAL OF SOCIAL POLICY AND CONSUMER AFFAIRS

GOVERNMENT DELEGATION FOR THE NATIONAL PLAN ON DRUGS

Spanish Observatory on Drugs

Household Survey on Alcohol and Drugs in Spain (EDADES)

National Survey on Drug Use in Secondary Education (ESTUDES)

Admissions to Treatment Indicator of the Spanish Observatory on Drugs

Mortality Indicator from Acute Reaction to Psychoactive Substances (RASUPSI)

Hospital Emergency Indicator in Users of Psychoactive Substances

DIRECTORATE-GENERAL FOR CONSUMER PROTECTION

National Institute for Consumer Protection

Injuries Program: Domestic and Leisure time Accidents

SPANISH AGENCY FOR FOOD SAFETY AND NUTRITION

SPANISH AGENCY FOR FOOD SAFETY AND NUTRITION

1.2 Strategies for development

As noted, the Health Information System of the NHS is largely based on specific thematic or existing statistics at both state and autonomous regions level and other agents of the National Health System. These systems had grown with different rates and criteria, which has caused difficulties in its accessibility by all system operators, integration and comparability of data.

In response to these limitations, it was necessary to define a conceptual and technical framework for the creation of a real Health Information System, an action that requires the integration and exploitation of existing data to get useful information for the progress of regional health policies and for strengthening the National Health System as a whole.

A preliminary reflection of stakeholders was promoted to identify, first, what were the unmet needs in this area and secondly, what was the most appropriate information system to serve different users.

It was conceptually established that the Information System should be an instrument capable of measuring the effectiveness, efficiency and responsiveness of the health protection system.

Effectiveness can be recognized if it is capable of identifying what works and what does not work, as well as indicate what the result of health interventions is, in terms of health.

The efficiency can be assessed if the Information System is able to recognize if they are making optimum use of resources to obtain the desired result.

Responsiveness will be recognized if it can provide:

- a) the extent to which the health system responds to health needs of the population
- b) the access level to benefits
- c) the satisfaction degree of the population.

The Health Information System should respond mainly to four questions:

- What is the status and health needs of citizens in each autonomous region and throughout the nation?
- What is the Responsiveness or effectiveness of the NHS?
- What is the efficiency degree of use of the available resources?
- What is the satisfaction degree shown by citizens?

It was also agreed a set of **basic principles** for its design:

- **To work on the identified information needs for the different recipients of the NHS Information System**

The creation of a Health Information System should allow each of its users to access the necessary information to make decisions within its competence. The autonomous regions, mainly for planning and management of health services. The Ministry of Health and Social Policy and the Inter-territorial Board to monitor the major objectives of the National Health System. Citizens to assess the functioning of a system which they participate.

- **To manage the contents of the NHS Information System from a comprehensive health care approach**

To face this it should articulate information about the different elements involved in the field of health protection, including structural information, functional and economic of the various benefits of the NHS that are defined in existing legislation, which include promotion, prevention and care, the status and trends of population health and its determinants and valuation of the citizenry on the operation of the system. The ultimate goal would be to make possible to establish relationships among them.

It should also consider the preparation of statistics for national purposes or derived from international commitments, drawing on information from both the public and the private sector.

- **To establish common data standards systematically**

Rules are the essential element of the infrastructure of health information. Therefore, we'd work on definitions, codes and benchmarks that would provide the information obtained with a valid meaning for all actors in the healthcare system and allowing the integrated analysis of data.

- **To validate the information from the autonomous regions and other agents of the NHS in origin by the producer and be eventually integrated and analyzed in a single device**

Standardized information produced by different administrations and different centres under the Ministry of Health and Social Policy as part of its own affairs, should be verified and validated by its production unit and subject to the minimum testing procedures by the receiving unity. Integration in the NHS Information System would be conducted by the Health Information Institute, under current legislation.

- **To offer and disseminate information on a wide range of formats.**

The information finally available should have a dissemination plan that would result in a high availability of data and indicators and a quick access to them. We identified as final products of the Information System: commodities (databases), products (tables and presentations) and integrated products (sets of related indicators and reports).

CONTENTS OF THE HEALTH INFORMATION SYSTEM OF THE NHS

- **Population**
 - basic characteristics and distribution
 - movements within the National Health System
 - level of health and its determinants
 - degree of use of health services
 - expectations about the health system
 - opinions as users of services

- **Activity developed**
 - health promotion
 - disease prevention
 - health care

- **Health resources**
(Structures, devices, human capital, health technology, pharmacy, medical products and others)
 - available and used resources
 - organization
 - costs

- **The health system responsiveness to address the needs and expectations of citizens**
 - coverage of services
 - equity in access and use
 - continuity of care
 - waiting times
 - information
 - quality of services
 - efficient management
 - satisfaction

2 Plan of Actions

2.1 Infraestructure and work distribution

- Development and strengthening of the Health Information Institute, framed within the NHS Quality Agency, which assumes the implementation and operation of the Health Information System, maintaining constant communication concerning information with the autonomous regions and other actors in the NHS. The relationship with the parties in the NHS Information System is dominated by technical rigor and neutrality.
- Full joint responsibility of the Subdirectorate-General for Information and Communication Technologies of the MSPS as provider of technological support to the system.
- Establishment of the Subcommittee on Information Systems, under the Inter-territorial Board, as a technical forum for the participation of all components of the National Health System to establish lines of development of the Information System, which issues the relevant proposals for agreement in the Board and from where the administrations represented are informed about the progress of technical work in the routine that is set in each case.
- Support by the Health Information Institute in the Ministerial Committee on Statistics, for coordination within the Department.

Health Information Institute: Strategic Lines

- Play a leadership role in health information systems
 - Offering a solvent structure for the dissemination and exchange of information, initiatives and analysis experiences in different fields related to health and developing a dynamic service organization in accordance with the objectives of the NHS on information
 - Effective management, efficient and timely use of health information
 - Data standardization lines, design of indicators and standards with the participation of the autonomous regions within the European Union framework
 - Dissemination Policy based on high accessibility to information, by consensus between the parties and protection of personal data
 - Inter-institutional collaboration for the participation of experts in projects
 - Permanent communication and debate forums and annual Conference of the Health Information System
 - Dissemination and exchange of information with international organizations promoting the Institute's presence

- Development of a continuous improvement and innovation policy in health information systems
 - Ensuring the adequacy of information systems to the evolving knowledge and health system development
 - Information systems focused on population and results
 - Information sharing between different actors
 - Safe and compatible technologies
 - Lines of research on measuring systems and health system performance and results evaluation
 - New indicators and studies on specific subjects
 - Systematic dissemination of innovations in information systems within the NHS
 - Collaboration policy in innovation with national and international partner organizations

- To obtain a position of technical credibility and neutrality within the NHS
 - Achieving the recognition of the recipients of the Information System of the NHS through a high turnout and use thereof
 - Methodological rigor and explicit methodology
 - Addressing areas of concern agreed by the Interterritorial Board
 - Reports on the development and status of the NHS Information System, for submission to the Inter-territorial Board
 - Elements of consensus and collaboration with agents of the NHS: Subcommittee on Information Systems of the Interterritorial Board
 - Useful information for citizens about the functioning of the NHS
 - Production of opportune and appropriate information to the needs of different users in a timely manner

2.2 Actions

a) Situation analysis and proposed framework of the NHS Information System

- Identifying information needs by reviewing the national and international literature, consulting experts from autonomous regions and the experience of experts in the Health Information Institute.
- Information availability analysis with respect to identified needs.
- Development of a relational index of needs / availability to know the areas of information already covered and fully available, the areas covered but in need of improvement and areas deficient or unavailable.
- To design a basic proposal for the Health Information System that will be presented to the Subcommittee on Information Systems of the NHS Inter-territorial Board.

b) Development of NHS Information System Project, in coordination with the Subcommittee on Information Systems of the NHS Inter-territorial Board

The project was approved in 2004 by the Inter-Territorial Board, including:

- The information content of the NHS Health Information System
- The steps involved in its production, based on relevance and feasibility of its implementation and maintenance
- The criteria for information inclusion in terms of usefulness for different recipients
- Products of the NHS Information System
- The technological support for communications and data
- Access conditions to information for different users
- Schedule of tasks until its general startup

c) Development activities of the NHS Information System

Following approval by the NHS Inter-territorial Board, project has been working in the following technical areas:

- Data: sources, standardized criteria, instruments and collection frequency
- Technological support: standards, shared tools, communications, interoperability
- Basic products: NHS Database: micro-data, metadata, thesaurus

- Elaborated products: indicators, reference standards
- Integrated products: sets of related indicators and reports
- Statistical site of the NHS

National Health System Data bank

<http://www.msps.es/en/estadEstudios/estadisticas/bancoDatos.htm>

The data collection work from the Health Services of the autonomous regions, the Ministry of Health and Social Policy and other sources, with a logical and structured storage of such data, makes this simple collection generate by itself a value since none of the isolates would gather them, thus constituting a real database of great potential and utility.

Data are available to the Central Government and the autonomous regions, as well as other potential users, according to terms of access established by the mentioned entities and in a permanently accessible form.

On the other hand, the maintenance of integrity and confidentiality of data is guaranteed in aspects and terms established by law.

3 NHS Key Indicators

The National Health System, and more broadly the Spanish health system as a whole, has a series of indicators through the Information System that can be grouped around its health meaning.

The indicators are available and can be obtained from the different information subsystems of the NHS, through closed presentations, or selection systems on previously developed data or indicators or by using interactive applications that allow you to select the variables to combine.

Through a system of consensus with the Autonomous regions and among the available indicators, a set of indicators have been selected. They provide, in an integrated and systematic way, essential information to the health system: this is the NHS Key Indicators approved by the Inter-territorial board which are available at:

http://www.msps.es/en/estadEstudios/estadisticas/sisInfSanSNS/inclasSNS_DB.htm

Obviously, some indicators refer to various phenomena with different meaning. Therefore, the presentation of data must be linked inextricably to their analysis, avoiding the risk which is usually involved with a separate assessment of indicators.

NHS KEY INDICATORS

- ***Health status indicators***
Guidance on the major health problems and prevalence of determinants of health status and identification of inequalities in it.
- ***Structural Indicators***
They provide reference information for the analysis of supply and distribution of resources.
- ***Health system utilization indicators***
They report on the frequency of use, utilization rates for certain procedures and/or technologies and come closer to the knowledge of healthcare consumption.
- ***Indicators of accessibility to the system***
They enable the identification of problems in access to health services.
- ***Expenditure indicators***
They report on used economic resources, based information from official accounts.
- ***Indicators on quality of care in the NHS***
They report on the provision of effective health services and quality, and therefore, collaborate to provide guidance on the existence of problems and variability in the provision of health services.

4 Statistical site of the NHS

www.msps.es

The Health Information System of the NHS provides its products and services under a Statistical Site hosted on the website of the Ministry of Health and Social Policy where it's possible the access to structured and thematically organized information. Data can be obtained either fully developed either through presentations that allow selection of tables or graphics and through interactive applications that allow the user to select what to analyze and how, which is especially useful for those who need further work with them.

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Institutional Organisation Citizens Professionals Library and Publications **Statistical Site of the SNS** Legislative Projects

Health Information System : Statistical Site of the SNS

Statistical tables, reports and documents

Consult Applications

Data Bank

Statistical classifications and harmonisation

Information and Statistics of the Autonomous Communities

Forums on the NHS Information System

Health Information System: Statistical Site of the SNS

Welcome to the Statistical Site of the SNS where you'll be able to access freely to the **Information System of the National Health System** containing data on health and health services in Spain. The site is aimed to healthcare professionals mainly but also for academic and science related professionals as well as citizens.

The Site allows to:

- To consult statistical tables, reports and documents on issues as health, prevention and healthcare, medicines, health expenditure and the opinion of the citizens.
- To make information about health and the health system using interactive applications.
- To download anonymous microdata and metadata of the health information systems as well as to request the granting of data of the National Rate of Deceases.
- To handle the ICD-9-MC Classification and other standardization instruments.
- To access the Basic Index of Statistics and Health Information Systems of the Autonomous Communities.

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