Efficiency models in the Andalusian Health Service supply chain

ABSTRACT

The Andalusian Health Service (SAS) is setting as their strategic objective the integration of the available logistics resources under a common operating model to enable their effective and efficient coordination. One of the initiatives adopted by SAS includes the definition and establishment of coding and symbol requirements by means of GS1 standards for products purchased by the Andalusian Health Service. The aim of this initiative is to promote the effective use of automatic product identification systems within the supply chain of health centres, in order to maximise the reliability of identification of the product and of its characteristics during use and during the management of its logistics movements.

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Background

The Servicio Andaluz de Salud / Andalusian Health Service (SAS) is an autonomous body affiliated to the Ministry of Health of the Autonomous Regional Government of Andalusia. Its aim is to provide public health services to the citizens of Andalusia.

Serving an area of 87,268 km^2 and a resident population of over 8 million inhabitants, the Andalusian Health Service provides its primary and specialised health care via 1,491 primary care centres, 29 hospitals and 8 blood transfusion centres.

It is equipped with 83,132 health care professionals (2007 data) and a budget of 8,751,387,000 Euros (2008 data) for the purposes of providing these services.

These figures give a clear idea of the magnitude of the challenge of equipping this organisation with a corporate logistics solution that meets the supply chain requirements of all its preventive care, medical assistance and health promotion systems and services.

Transformation of purchasing and logistics services

The organisation of purchasing and logistics services has evolved significantly over the last decade. The "multicentric" focus which is based on each Primary Health Care Hospital or District being equipped with a budget, a logistics system and the decision-making capacity to manage it, has been replaced by a systemic and integration-centred focus; a collective corporate vision based on the intensive use of information and communication technologies (ICT).

The inefficiencies resulting from a "multicentric" focus, which requires the provision of logistics resources in each institution without taking into account the possibility of sharing organisational facilities or systems, and which is the dominant model in public health systems and in some private health networks, can and must come to an end by means of establishing integrated networks of logistics resources.

At the beginning of this transformation process, the Andalusian Health Service is setting as their strategic objective the integration of the available logistics resources under a common operating model to enable their effective and efficient coordination.

Two central lines of analysis are distinguished under this approach: the first of these is to examine and assess the logistics resources available in the Andalusian Health Service. The second is to outline their integration strategy.

The development of these initiatives takes two different forms: firstly, the concept of the Corporate Logistics System, defined as the collection of facilities, material and professional resources and organisational means aimed at meeting needs in this regard in the Centres. Secondly, the Integral Logistics Management System – Spanish initials: SIGLO®, set up as the group of IT applications used for the management of the logistics procedures carried out via the Corporate Logistics System, and which, in turn, takes the form of two main lines of analysis, one of which concerns goods, and the other dealing with issues regarding information and business messaging.

From this point on, the Andalusian Health Service is to embark on the following courses of action:

1. Establishing infrastructures to enable traceability and efficient logistics management.

The initiatives that come under this heading aim to introduce those basic elements of infrastructure into the supply chain on which a secure and efficient logistics management model will subsequently be built. The initiatives adopted by the Andalusian Health Service include the following notable examples:

- Definition and establishment of coding and symbol requirements by means of GS1 standards for products purchased by the Andalusian Health Service.
  The aim of this initiative is to promote the effective use of automatic product identification systems within the supply chain of health centres, in order to maximise the reliability of identification of the product and of its characteristics during use and during the management of its logistics movements.
  The level of establishment achieved has greatly improved the outlook for this sector.
- Alignment of files with suppliers. Product catalogue
  The product catalogue of the Andalusian Health Service is supported by an IT platform which the suppliers of our organisation can access via the Internet Portal of the Andalusian Health Service (www.juntadeandalucia.es/servicioandaluzdesalud) in order to provide information on the technical, identification and logistics characteristics of the products that they wish to market to our organisation's centres. It is the channel for aligning the product catalogue required by the Andalusian Health Service with those products available on the market (with each of the companies that sell them) that match the specifications of the buyer, once the corresponding validations have been carried out on the product and on the information provided on the product. It is an essential step for becoming a supplier of the registered product.

- Validation of the coding structure and the symbols used.
  The validation of the logistics information provided by the supplier is critical for the correct identification process of goods in the logistics chain. The guarantee of accuracy of the information provided via the product catalogue and of basic quality of representation of the symbols on the containers and packaging of the goods supplied is essential for the establishment of efficient models of logistics management. To this end, the Andalusian Health Service has drawn up two courses of action: the first aims to guarantee the consistency and validity of the logistics information provided; the second aims to examine the technical adaptation of the symbols (bar codes) used by the suppliers on their containers and packaging and their consistency with the logistics information provided, both on the samples requested and on the goods supplied to the Centres.
- Purchasing policy based on the prior approval of suppliers and products.
  A corporate purchasing policy must be drawn up and implemented, which, in addition to improving the efficiency of the Centres as purchasing agents, and therefore the global position of the organisation in the market, will direct and encourage the supply companies toward the points of interest of the corporate operations. This is the case with the identification of products using GS1 standards or the conditions of transfer of the goods from the supplier to the buyer via Logistics Development Agreements and Logistics Specifications Forms as elements incorporated into the supply contract, which shall be dealt with later in the text.
- Policy of maximum information for purchases.

Corporate policies which are based on the decentralisation of the purchasing function, such as that developed by the Andalusian Health Service, require the implementation of strategies of maximisation of information for purchases, especially with regard to the technical information concerning the characteristics of the product and the approval fees and actual purchase prices.

2. Normalisation and generalisation of requirements in relation to logistics services for purchases. Logistics Development Agreements. Logistics Specifications Forms. Deposit Management Agreements.

The need to include a number of clauses in a systematic and homogeneous form in supply contracts to govern the transfer process of goods from the supplier to the buyer, as indicated above, has brought about the normalisation and systematic use of a number of logistics practices that due to their nature must be the result of a consensus between the parties involved. The nature of the supply chain requires this. The Andalusian Health Service has developed and sought a consensus with the main representative organisations of its suppliers on the conditions that ought to govern these practices, both in the case of storable goods (Logistics Development Agreements) and in the case of goods supplied under an assisted storage arrangement, such as surgical implants (Storage Management Agreements). The prior and specific knowledge of the logistics aspects that must be implemented in order to fulfil the contract are essential for the subsequent monitoring of their performance and for the correction of any potential deviations.

3. Identification and inventory of facilities, material and professional resources and organisational means used for logistics purposes. Logistics Accreditation System. Configuration of the Corporate Logistics System.

Addressing the "logistics issue" in an organisation of the size and complexity of the Andalusian Health Service requires several methods of approach. The analysis of the material resources used for this purpose, which the initiatives described in this section refer to, is essential as they represent a direct source of costs in the system that must be managed.

Therefore, the examination and inventory of the facilities, material and professional resources and organisational means used for maintaining the logistics systems in the centres forms part of an internal accreditation process that requires

an internal examination of the organisation's centres by means of an information collection protocol supported by a corporate-wide IT application (Logistics Accreditation System). Completion of this process allows, among other objectives, the accreditation of conditions for the future establishment of the SIGLO® platform, referred to below.

This accreditation process, in which all the Centres of the Andalusian Health Service are involved, enables the actual magnitudes and descriptive characteristics of the Corporate Logistics System to be determined.

4. Identification and normalisation of management processes and procedures.

The second of the aspects addressed in the accreditation process focuses on the identification of the principal processes and procedures, in other words, those which form part of the common nucleus of operations taking place in all the Centres (entering into transactions, order management, reception of goods, storage, etc.).

Having identified these processes and indicated the units responsible for carrying them out, the next step is the normalisation and standardisation of these procedures in order to incorporate them into the collection of utilities that make up the management system contained in the SIGLO® platform. In this way, a standardised group of procedures is established which must incorporate all the users of the platform.

5. Design of the SIGLO® platform.

For the management of the Corporate Logistics System, understood as the material and tangible component of the logistics resources, as well as of the management processes and procedures, this platform focuses its course of action in two directions: the management of goods and their

traceability, and the management of business messaging which, as an Electronic Data Interchange (EDI), drives and intervenes in the supply chain.

- Management of goods. Traceability.
  The procedures incorporated into the functional design of this platform have been based on the full implementation of the GS1 identification standard, thereby completing the course of action described in the preceding paragraphs.
  This set of initiatives aims to improve the control and logistics management of the goods moving through the supply chain, as well as their traceability.
  The automation of the process of receiving orders and their validation, the elimination of errors and incidents during processing, the accurate knowledge of the levels of stocks in storage, the correct preparation and management of orders for restocking and distribution, and the monitoring of consumption, among other factors, are benefits that are hoped to be obtained in each of the Centres following the implementation of this system, thereby considerably improving the efficiency of certain processes that currently involve a significant administrative workload. In addition, we must consider the possibility of integrating resources so as to favour their shared use, given that the management tools and the organisational bases are shared. We shall address this matter in the final section.
- Management of business messaging (EDI)
  The automation of the goods identification process by means of the systematic use of bar codes must be completed with the establishment of a standard protocol of communication of business messages between the agents involved in the logistics chain.
  The Andalusian Health Service has, as an initial step, integrated the following into the functional structure of the SIGLO® platform: use of the order messages (ORDER), delivery note (DESADV), confirmation of reception (RECADV) and invoice (INVOIC), so that close monitoring can be established for each step as of the prior verification of fulfilment of the former.
  The generalisation of this strategy shall entail a far-reaching transformation of both the management of goods and the management of messages that drive their movement through the supply chain, thereby resulting in considerable improvements in the efficiency of the internal processes and a considerable reduction in the costs of management of goods.

6. Improving the efficiency of the logistics system: redesign strategies.

As has already been emphasised, the SIGLO® management platform must enable all its users to operate under the same operation model, given that its management procedures are shared.

This condition enables us to understand the Corporate Logistics System as a network in which each node (Centre), which until now has functioned in an autonomous and unconnected manner, is integrated into a coordinated and interactive structure. This evolution is only possible with the establishment of a common "intelligence", a logical system which harmonises and coordinates the operation of all its nodes.

Irrespective of the direct improvements in the internal efficiency of each node that this entails, this measure enables us to establish a new analysis and redesign approach for the Corporate Logistics System. We must not forget that a logistics system currently exists for each Centre within this network.

A significant reservoir of improvement initiatives therefore exists for the global efficiency of the logistics system, which must explore the standardisation and the shared use of logistics resources on the basis of an efficient distribution system.

We shall devote our attention to this issue in the future.

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