



CSI-Piemonte Uses SAS® to Enable Better Public Health Care Expenditure Decisions

Industry

Health Care Providers

Business Issue

Determine pharmaceutical expenditures and track recommended health care treatments and prescription guidelines.

Solution

SAS Business Intelligence delivers a better view of overall health care expenditures and helps uncover irregularities in prescribing treatments and medicines.

Benefits

SAS detects potential problems in half the time, reduces work-hour costs and improves customer satisfaction.

CSI-Piemonte (Consortium for Information Systems) is the main body representing regional public administration in the field of information technology and telematics. It carries out research activities, develops technologically advanced products and services, and designs applications and information systems. The company is among the top 30 ICT (information and communications technologies) companies in Italy, and the third-largest Internet consumer in Piedmont. CSI is also cooperating to build the "Piedmont System" to accomplish administrative decentralization through the use of information technology.

Says Nathalie Coué, who works principally on public health care system decision support, "Since 1996, we have been trying to implement an architectural change in the information systems in order to design an organic information layer, archived and periodically updated so as to build flexible and easy-to-use access functionality. One goal is to cease creating single programs oriented to the production of statistical reports, but to try to integrate all decision systems together."

The basic topics the decision support system is supporting are pharmaceutical, health indicators, oncological centers network, centralization of pathological anatomies and cytological and mammographic screening programs. CSI-Piemonte chose SAS to execute these projects on the strength of SAS' reputation. "We chose SAS because in the decision support area,

SAS is one of the most important players in the field," says Coué. "Also, SAS already had an application which suited our needs, particularly in terms of volume of data."

Keeping Track of Expenditures

"There are certain questions we want to answer," says Coué. Those questions include:

- How are expenditures growing compared with last year?
- Which population profile contributes the most to expenditures?
- What is the patient distribution in a certain geographic area compared with the expenditure?
- How does the average expenditure per patient vary according to the age bracket?
- For which diseases is the highest expenditure per patient?

These are large questions, and it is an ambitious project. "The government is concerned with the pharmaceutical expenditures of the region," continues Coué. In Italy, local public health authorities regulate the public health services. In Piedmont, there are 22 different local authorities, including four different authorities in the city of Torino alone.

"The budget allows a certain supply for the region, and it is necessary to check whether all the different territories of the region are the same. There is already an application from the operational system that transfers economic information from each local authority to the region,

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Nathalie Coué
Project Leader

because at the end of the year each local authority must be able to claim the total amount of different types of drugs dispensed and claim reimbursement from the central government,” Coué explains.

Compare and Contrast

“We are developing the business intelligence system to centralize our information in a data warehouse for all 22 local authorities,” she says. “We want to give the regional authority the ability to use data mining to examine their data and create graphical reports for individual doctors. These reports show the doctors the prescription activity according to sex and age and other demographics. The demographics influence whether the cost of the prescription is paid by the state or not. The doctor can compare his or her activity to that of the rest of the region.”

There is an element of the watchdog in the system as well. As Coué puts it, “A secondary benefit to having this system in place is that it lets the doctors know that we are monitoring their information. The drug companies sometimes market aggressively to the doctors, and the cost of the drugs is not always advantageous to the government.”

For instance, CSI-Piemonte conducted a study of hypertension treatment. “The first question we asked was, ‘is the treatment recommended by the World Health Organization (WHO) for this condition being respected, or not?’ We analyzed the specific drugs for hypertension for six months for the entire population. It turned out that treatment for hypertension accounted for more than 30 percent of total expenditure, which is quite high,” says Coué.

By doing cluster analysis on 4,000 doctors, CSI-Piemonte identified a group of doctors who did not follow the WHO guidelines. As a result, the region decided to organize a specific information action to explain the guidelines to the doctors, and to find out why they had not been adhering to them. Says Coué, “According to certain characteristics, we can now predict whether a doctor will adhere to guidelines or not, and potentially execute preventative measures to ensure that he or she knows the guidelines and understands them.”

A Clear Picture

“All prescribed drugs in Italy were free until few years ago. Now the system for charging people for prescriptions is subject to applied restrictions, and

it is proving a bit difficult to track these restrictions,” Coué says. “The SAS system, with the superior data warehouse and reporting functionalities, helps us to do that.

“The OLAP interface is very important to us. We have five points of view in the interface: expenditure and volume analysis, territory and mobility analysis, exemption and pathology analysis, abnormality analysis and pharmaceutical/drug analysis. We can use this to uncover patterns that signify irregularities in prescribing. For example, some people are eligible, for pathologic reasons, to receive all their prescriptions for free. However, if drugs that do not fit that individual’s profile are given to that kind of person, then we can see that they are receiving prescriptions for someone else who might not in fact be eligible for free prescriptions.”

Coué maintains that the flexibility and scalability of SAS is important to CSI-Piemonte’s success in this project, and in enabling them to get a better view of overall health care expenditures. “Being able to examine our data from different points of view – that of the patient, the doctor, the entire region – is very important, and SAS helps us do that.”