Pan American Health Organization
Regional Office of the World Health Organization

The Pan American Health Organization Health Information Platform: an organisation-wide data warehouse and health intelligence platform to support health analysis and decision making

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Introduction

The Pan American Health Organization (PAHO) collects, analyzes, and synthesizes a large amount of health-related data from Member States. Data are often collected by individual departments on specific health topics and kept in distinct databases. Users often find it difficult to identify and access the data they need to answer specific questions. In addition, the increasing demand for health information in the context of the scaling up for better health requires a flexible and dynamic approach to analyzing, synthesizing, and communicating relevant information to users.

The design, development and implementation of the PAHO Health Information Platform (PHIP) as a solution to above mentioned problems is presented.

PHIP Definition: Corporate-wide Health Information System responsible for integrating, storing, processing and make available the health data, statistics and information.

Solution for data integration from heterogeneous source system databases, including areas and programs across the Organization and countries.

Information system that:

- allows access to available data, and metadata dictionary
- provides valid, consistent and reliable data which are ready to use for reporting and analysis;
- provides fast visual analytic tools to facilitate health analysis
- facilitate the publication of analytic reports and visualizations
- facilitate access to analytic reports, visualizations

Methods

Data collection, flows, cleaning, integration, storage, reporting and managements processes and analytics requirements were elicited. Based on requirements and specifications, the platform was architected as described in Figure 1.

The PHIP Information Technology infrastructure was designed according to the architecture and it is presented in Figure 2.

Methods

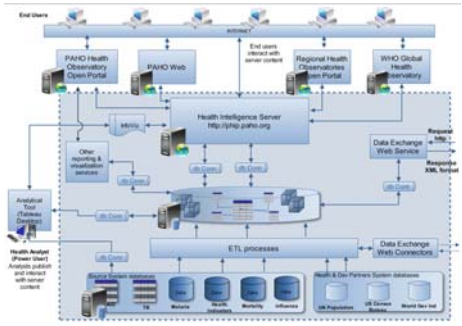

Figure 1. PHIP Architecture

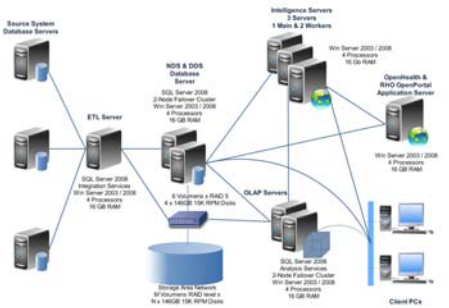

Figure 2. PHIP IT Infrastructure

Multiple data sources were integrated in a data warehouse using a data integration service. Data warehouse is accessible to health professionals and analysts within the Organization.

Tableau Software –Tableau Server and Tableau Desktop – was implemented as a BI solution to provide fast and visual analysis of large databases.

Results

Integrated health data is available and ready to be used for more comprehensive analysis by health analysts within the Organization.

Data available

1. Regional Mortality database.
2. Health Indicators database.
3. Global Tuberculosis database.
4. Population, UN Population Division.
5. World Development Indicators (WDI), World Bank
6. International Development Assistance for Health, OECD and IHME.

The visual and fast analytic approach - implemented in PHIP- allows health analysts to explore large and complex data sets, understanding data, unveiling data patterns, and enabling ad-hoc data exploration.

Results

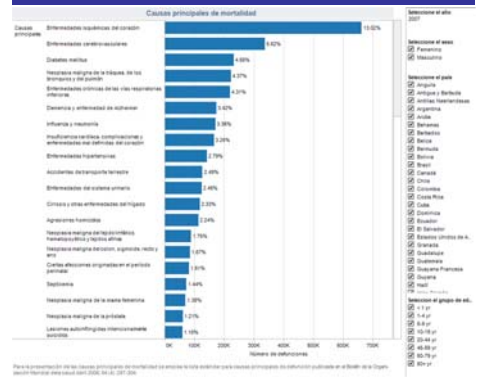

Figure 4. Leading causes of death

PHIP also facilitates the elaboration and publication of interactive and rich reports, visualizations and dashboards.

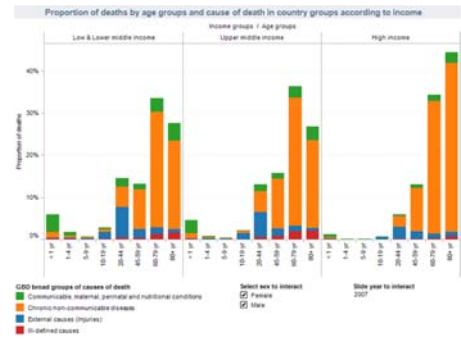

Figure 3. Deaths by group of causes and Income

High interactivity is a feature of every information products, allowing end-users to ask questions and get answers while exploring them.

Figure 5. Health Indicators Atlas

Conclusions

PHIP has been the solution for:

- the integration of data from technical areas and programs across the Organization
- facilitating access to health data for analysis
- the elaboration and dissemination of information products and providing health information and evidence to Member States, policymakers and the public;
- applying a more efficient and effective way to communicate relevant information to users