



Centralised processing  
Timely information

# Information Management for Health Services

## INDUSTRY

- Public Health, Government

## CHALLENGES

- To develop a health information system that provides efficient, timely information-sharing, reporting, analysis and enquiries

## OFFERING

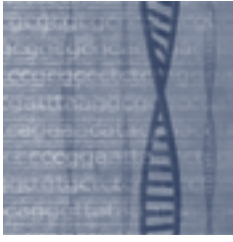
- Public health information system connecting over 70 agencies and systems
- Data standardisation of health information covering seven major areas in Hong Kong

## BENEFITS

- Increased operational efficiency with intelligent, user-friendly features
- Automated routine activities
- Greater volume of processing
- Scalable for future system expansion

**Hong Kong Department of Health** ■ “Partnership in Health” is the public mission of the Department of Health of the Hong Kong Special Administrative Region government. This mission reflects the involvement of the community and other healthcare professionals in the joint effort to improve the health of the people of Hong Kong. Efficient and timely information management, reporting and dissemination is key to the fulfillment of the department’s role. To this end, the Department implements the Public Health Information System (PHIS), a system capable of providing information to evaluate and monitor health services, facilitate responses and interventions, and support planning and policy formulation. In particular, this system aims to address the gaps in the collation, sharing and management of public health information in Hong Kong.





PHIS is an integrated system to facilitate the gathering, analysis and research of public health related data in support of disease surveillance and public health policy making. It will ultimately help improve the standards of health care and reduce the disease burden on the HKSAR population, by improving health information management for evidence based monitoring and surveillance.

**Project Goals** ■ PHIS aims to support more effective prevention and control of communicable diseases through disease surveillance; to examine disease patterns and determinants and monitor the intervention for non-communicable diseases; to facilitate evaluation and monitoring of the efficiency and effectiveness of public healthcare services; to assess the health status of the population by compiling of health indicators; and to facilitate the assessment of needs so as to ensure appropriate provision of healthcare services and allocation of resources.

**PHIS Development and Deployment** ■ As part of the project, NCS conducted a nine-month data standardisation exercise to improve data consistency and comparability across public health. In this exercise, NCS developed the Hong Kong Public Health Information Model and Public Health Data Dictionary. Minimum data sets were established for Notifiable Infectious Diseases, Occupational Health, Core Demographic, Public Emergency Care Attendances, and others. After the success of the data standardisation exercise, NCS went on to develop and implement the public health information system. The integrated solution consists of the health information portal, disease surveillance modules, document management system, data warehouse, data mining and geographical information system.

**Operational Efficiency** ■ PHIS has improved the organisation's information management and operational efficiency. Data volume and reports, as well as the variety of sources from which the data are derived have increased. In addition, the system integrates data from various forms and various legacy systems to form a synchronised whole, thus eliminating the conventional silo-type departmental data stores.

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**Major Benefits** ■ A major benefit is the saving in time and manpower with the automation of routine activities such as data input, data validation, data analysis, report generation, processing of enquiries and the dissemination of health information. This has enabled the department to extend its services and keep pace with the ever increasing complexity of data analysis, and respond to public health issues in a timely manner.

**Industrial Recognised Platforms** ■ The system is deployed on a Web-based thin-client environment, using an eForm function that puts data uploading and data revision under one single platform. The system provides various means of data capture from different sources. An On Line Analytical Processing (OLAP) engine allows users to perform aggregated data analysis as well as record level listing. Users see the whole picture while being able to investigate cases down to record level. A geographical information system provides a visual depiction of the report to help the user conceptualise patterns and clustering.

Both ad hoc enquiries and pre-scheduled reports can be processed. The generated reports are stored in archives retrievable for future use.

The system uses several industrial recognised applications: Ascential's DataStage for extraction, translation and loading; the JAVA platform to deliver the thin client user interface; and the SAS data warehouse suites of software to run the OLAP engine. All these software platforms are run on a scalable architecture using Sun Solaris.