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# HEALTHCARE IT PRODUCTS

CASE STUDY: IMPLEMENTATION OF MAGNUM IMAGING AT  
QUALITY HEALTHCARE MEDICAL SERVICE, HONG KONG

## HealthFore – Transforming Healthcare

HealthFore Technologies Limited is a global healthcare IT solutions and advisory services company. Our B2B and B2C IT solutions help hospital chains, diagnostic centers and public health enterprises realize superior clinical outcomes.

Our patient-centric healthcare solutions focus on wellness, preventive care and condition management. Our information and health advisory services ensure prompt diagnosis and treatment of diseases. We create mass awareness to improve the quality of life through self-care.

HealthFore's IT products and services are built on leading-edge technology. Our solutions increase productivity and boost revenue for healthcare providers through process automation, interoperability and collaboration. Significantly, our customized solutions enable world-class patient care and comply with healthcare regulations, while minimizing costs.

We increase the reach of healthcare by investing in R&D. Our team of doctors, radiologists, dentists, physiotherapists, nurses, hospital administrators, pharmacists, and technicians provide insights to develop innovative solutions and streamline healthcare. Our strategic relationships with Microsoft, Oracle, IBM, HP, and Barco are the backbone of our healthcare solutions.

## About Our Customer

Quality HealthCare Medical Services (QHMS) Limited is a physician led provider group offering an integrated range of healthcare services including facilities management, third party plan administration and paramedical support. The Group provides care for our private and corporate contract patients through a network of more than 580 Western and Chinese medical centers, and 47 dental and physiotherapy centers. In 2010, our network recorded more than 2.8 million healthcare visits. We also operate Hong Kong's longest-established nursing agency and one of our medical practices has been serving Hong Kong people for over 140 years.

In 2010, Quality HealthCare became a member of Fortis Global Healthcare, which is owned by the family of Malvinder Mohan Singh and Shivinder Mohan Singh (the “Promoter Family”). Fortis Global Healthcare is committed to providing premier patient-centric healthcare across Asia and Australia, spanning the healthcare spectrum, from hospitals to diagnostics, primary care, and other healthcare segments.

### **Major challenges**

Due to the huge number of patient inflow at QHMS, the data generated were also huge, resulting in huge amount of revenue being spent on the storage of the data, especially for Medical Images. Medical imaging technologies such as Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Ultrasound, Fluoroscopy, Angiography, Nuclear Medicine scans, and Radiography (X-rays) were all produced on films. These films led to monstrous file rooms to maintain the documents, as well as other systems that were needed to maintain the communication information about the interpretation and consultation of these films. Managing these films and their associated documentation became a monumental feat for QHMS. Equally important was the fact that the management of this data had a direct impact on the quality of the patient care.

Also, due to the lack of radiologists within Hong Kong City, external radiologists from around Hong Kong were hired to report on the radiological reports generated by QHMS. The solution had to be completely web based so that the external radiologists could access the images without having to be physically present at the diagnostic center.

The center also had to be integrated with the Hong Kong Hospital Authority for patients to be referred to QHMS.

### **Need**

The need of the hour for QHMS was to reduce the huge revenue spends on the data storage as well as to improve the quality of the service provided by them. What QHMS wanted was a system that will provide a complete workflow from Registration till reporting with an efficient storage for the Medical images as well as integrate the center to Hong Kong Hospital Authority. The system was also expected to pre-fetch images for interpretation, automatically route images to predetermined physicians, provide a radiologist with an audible or visual alert for stat readings, etc., and should also be able to recognize and keep track of radiologist reading preferences and their current location.

## Our Solution

HealthFore's Magnum Imaging is an FDA approved Picture Archiving and communication solution with Radiology Information System that fit the requirement of QHMS. Magnum Imaging not only helped in providing a complete workflow right from registration all the way to reporting but also helped in cutting down the revenue spent on the storage of film. It also helped in integration of various disparate modalities resulting in easy portability of the patient data among the physicians which in turn resulted in increased efficiency and utilization of the available resources. Implementation of Magnum Imaging has impacted in these three distinct areas:

### 1. Operation Cost

- Variable Cost.

### 2. Soft Cost

- Increased radiologist efficiencies
- Decreased operational costs

### 3. Revenue enhancement opportunity

- Remote patient care
- Strategic placement of services
- Better understanding of costs

Magnum Imaging provided the ability to not only distribute images to the requestor but also communicate to radiologists for patient scheduling, download patient demographics to modalities, track image location, and

assemble collaborative materials necessary to interpret the image. Magnum Imaging also made it possible to manipulate a digital image and improve the diagnostic value while at the same time reducing the radiation exposure to the patient. With the digital images, there was no longer the need for expensive film and the associated materials to process these films. There were no longer the space requirements for storages of the films and associated materials, and no longer the need for hazardous materials disposal from the film development process.

QHMS was also the first provider in Hong Kong to interface with the Hong Kong Hospital Authority. HealthFore provided an interface for QHMS to electronically transfer the diagnostic images and radiology reports of the patients referred by the Hospital Authority (HA) to make them available in HA Clinical Management Systems (CMS)/ Electronic Patient Record (ePR).

Overall, Magnum Imaging gave QHMS the information needed to provide better, more efficient patient care. The biggest benefit of Magnum Imaging was the breaking of the physical and time barriers involved in the information exchange between the center and various external radiologists' offices.

## Result

1. Better accessibility to external Radiologists.
2. Elimination of High cost of producing & storing film studies.
3. Proper Handling of Huge amount of data and easy accessibility of the data.
4. Order generation with HL7 and 2D barcode.
5. Faster reporting turnaround time.
6. Reduced patient and clinician wait time for getting the diagnostic reports.
7. Web-based solution enables anytime, anywhere access to radiological images to external radiologists.
8. Magnum PACS integrates images from multiple modalities with clinical patient data, streamlining radiology department workflow and improving the radiologist's efficiency.

“For the launch of our new ‘Q Diagnostic & Imaging Centre’ in early 2011, we selected Healthfore to provide us with a RIS/PACS solution. Healthfore, through the use of its mature and efficient process worked closely with us to get their web based enterprise class Magnum RIS/PACS suite rolled out in record timelines. They played a key role in the successful implementation of the Radiology Image Sharing interface with the Hong Kong Hospital Authority. Throughout the process the Healthfore team provided us with continued support and has become one of our valued and long-term IT partners.”

Gerhard Zielinski, CIO - Quality HealthCare