



2016 Top Markets Report **Health IT** Country Case Study

Turkey

Turkey is a moderate-sized Health IT market that has already set a solid foundation for their national Health IT system, particularly in the areas of Electronic Health Records (EHRs) and Hospital Information Systems (HIS). Turkey, however, has not done much to date in the areas of mobile health/telehealth, clinical decision support and data analytics, which offer significant potential to U.S. firms. A large public-private partnership project to build more than two dozen large hospital campuses will also be of interest to Health IT sector stakeholders.

Overall Rank

52

Description of Rank and Sub-score Measurements

Turkey received a modest ranking in this Report due to comparatively low levels of healthcare expenditures and mobile and Internet subscriptions by consumers. As described below, however, Turkey has laid much of the foundation for a potentially strong Health IT sector in the future due to logical policy decisions and existing infrastructure.

Opportunities for U.S. Companies

Turkey has made progress in establishing a central Health IT infrastructure, starting with the structured collection of patient health records. Turkey now would like to make this data accessible so that patients can make good decisions about their individual health and businesses can develop analytic tools so that hospitals and health systems can make sound business decisions.¹

Turkey's Ministry of Health (MOH) is the largest provider of healthcare services and serves as the lead government body to plan and implement healthcare and Health IT-related projects. Local software companies also play a significant role in providing specific Health IT solutions, including EHRs and HIS, which are widely used in Turkish hospitals.

In 2003, MOH launched an aggressive "Healthcare Transformation Program (HTP)", an initiative to restructure delivery of healthcare and to increase access of citizens to these services. The HTP is a long-term project with many elements still in progress. Integration of Health IT systems into this program was identified as a very critical factor for its success. The following actions were initially taken at the primary care level but which now can be found at all hospitals in Turkey:

- Keeping patient records in a structured manner and using EHR software that has the capability to transfer data to MOH;
- Mandating hospitals to use HIS in order to increase their management efficiency and quality of medical services delivered; and
- Merging different reimbursement systems used by different social security systems.

The introduction of the HTP coincided with a period of sustained economic growth, which enabled the government to increase health expenditures at an average annual rate of 9.1 percent. Turkey's public-sector funding as a percentage of total health expenditures increased from 63.0 percent in 2000 to 75.2 percent in 2010, while health expenditures rose

from 4.1 percent of the gross domestic product in 2002 to 6.1 percent in 2010.ⁱⁱ

The MOH established a Healthcare Informatics Department to design the Health IT system called the “National Health Information System (NHIS).” NHIS was designed to receive and store electronic health records of all patients, which is now accessible to citizens on a mobile portal. Health record collection starts at the prenatal stage and continues into all stages of that person’s life. The NHIS has a communication backbone covering the whole country and allows transfer of medical images. It is also possible to record human capital and all types of assets in the healthcare system into this portal. NHIS consists of the following elements:ⁱⁱⁱ

1. Health-NET (Saglik-Net)

Health-NET is an integrated and expandable information system which aims to improve the efficiency and quality of healthcare services. Health-NET uses patient data collected from various healthcare system stakeholders, and MOH determines policies related to public health. Health-NET has three primary components: National Health Data Standards (400 data elements, more than 60 datasets); a Health Coding Reference Server that brings together health information standards and coding systems such as ICD-10; and Internet services to take data from the field and enter it into Health-NET.

2. Telemedicine

Telemedicine is still not a common diagnostics method in Turkey, but MOH is doing some pilot projects. Priority is given to telemedicine use in the analyses of results from radiology, pathology, biochemistry and electrocardiogram (ECG) tests. In instances where telemedicine is used, medical images are transferred to the evaluation point using Digital Imaging and Communications in Medicine (DICOM)^{iv} standards.

3. Electronic Health Records (EHRs)

As collection of healthcare information on every patient is a key feature in establishing a nationwide health IT system, MOH first mandated the use of EHR software by every family physician and, at later stages, by all medical doctors working at public

hospitals. Data collected from each patient is transferred to central servers kept by MOH. Every Turkish citizen has a national ID number for creating their health record. This health record is connected to that person throughout their life. Collection of patient health data will also make it possible for MOH to forecast healthcare related trends and to manage chronic illnesses.

Many Turkish Health IT software companies have developed EHR software which family physicians and hospitals use across the country. Healthcare entities can only use EHR software that have been developed according to MOH technical standards and that can transfer patient data to MOH servers.

4. Central Hospital Appointment System

Through a web portal, everyone can arrange their appointments with the doctors they prefer. There is also a call center that supports this website.

5. E-Prescription

Hard-copy prescriptions are no longer issued by medical doctors, but an e-prescription code is given so that a patient can fill their drug prescription at pharmacies. Pharmacies use an online payment system connected to the Social Security Institute (SSI) reimbursement system so that patients only pay the proper contribution amount.

6. E-Pulse

MOH launched the E-Pulse mobile health portal (www.enabiz.gov.tr) in 2015. Any Turkish citizen with a national ID has access to this portal, and they can see their health history, diagnostics, medical images, treatment plan and drugs prescribed. As long as the patient does not limit access to their records, medical doctors working at any public hospital can access this information. This application works on iPhone, Android and Windows phones, as well on the Internet.

E-Pulse was also created with the intention of sending data obtained through remote monitoring and wearable devices to the person’s health record. Patients will also be able to access their clinical lab results and radiological images on this system, which is designed to prevent repeat orders of the same tests from the same patient by different doctors.

There is a 112^v button embedded in this system, which makes it possible for the user to call an ambulance in emergency situations.

Further, Turkey plans to build as many as 29 large healthcare campuses across the country in the coming years, with each one having between 500 and 3,000 beds. These campuses will be built under a public-private partnership (PPP) model whereby the private sector will invest in the construction of these healthcare facilities and will operate them for 25 years in return for annual lease payments to be paid by MOH. These new health campuses will require advanced HIS hardware and software systems, which may be of interest to Health IT integrators and companies with cutting-edge technologies.

Separately, there is a strong base of Turkish software developers, especially in the EHR sector. As MOH mandates use of EHRs by family physicians and public hospitals, a large market exists for these companies. Some of these companies are also active in development of partial or full HIS software. In these specific two areas, Turkish companies dominate the market. Regarding analysis of “Big Data” collected, datamining and implementation of clinical support systems,^{vi} however, the knowledge base of Turkish companies is comparatively limited, and U.S. companies may be valuable partners with these domestic companies.

In December 2012, MOH released a Strategic Plan,^{vii} detailing healthcare priorities in Turkey between 2013 and 2017. Some of the key features of the Strategic Plan as they relate to Health IT include:

- Have the Turkish HIS collect health data in a joint database and share data in a safe environment (including integration of physicians and hospitals and ensure use of an e-prescription system);
- Establish data warehouses for decision support system information;
- Develop an EHR portal to collect, monitor and provide safe access to, and to share, personal health information (possibly through Health-Net);
- Have more Turkish stakeholders adopt Health IT standards (including health datasets, codes and classification systems, and promote interoperability);

- Ensure integration of health information systems into Health-Net (including rollout of telehealth and mobile health services and e-appointment services);
- Improve quality and security standards for people and institutions using health data (including procurement, hardware and software standards);
- Register and certify companies and health information systems; and
- Identify and implement confidentiality, privacy and security principles for the management of health information (this will require legislation).

Challenges in the Market

The biggest challenge for the Turkish healthcare system currently is developing a structured way to analyze patient health data so that MOH can make public health-related decisions and use the data to make projections. Healthcare facilities also need business intelligence solutions to better assess the efficiency of their systems and make necessary improvements. Medical doctors also need a consistent, nationwide clinical support system that guides medical doctors during diagnosis of illnesses and treatment of their patients. Introduction of such systems will reduce clinical mistakes and, consequently, overall healthcare costs.

Additionally, only some of Turkey’s approximately 900 public hospitals have HIS, and these often are unable to communicate with each other. This situation results in a lack of interoperability throughout the health system and means that patient data are sometimes not available when and where they are needed. In order to adopt and fully utilize HIS at individual hospitals, MOH has been cooperating with the Health Information and Management Systems Society (HIMSS) to increase the awareness level of hospital administrators of Health IT solutions and to encourage public hospitals to participate in HIMSS’s survey of Turkish hospitals to determine how far they have progressed toward having a paperless healthcare environment.

ⁱ This section, and much of the data and analysis found in the Turkey Case Study, is based on the following report: “Turkey Health IT 2015,” Olcay, Ebru, U.S. Commercial Service, November 25, 2015.

ⁱⁱ The World Bank. World development indicators, 2012 (<http://data.worldbank.org/data-catalog/world-development-indicators/wdi-2012>).

ⁱⁱⁱ “Turkey Health IT 2015,” Olcay, Ebru, U.S. Commercial Service, November 25, 2015.

^{iv} More information on DICOM is available at <http://dicom.nema.org/>.

^v In Turkey “112” has been known only as the Ambulance Service Number since 1993.

^{vi} “EHRs in Turkish Hospitals,” Jorg Studzinski, Korhan An, HIMSS PowerPoint Presentation, June 2014.

^{vii} Website for Ministry of Health Strategic Plan (Health IT can be found on pages 101-104): <https://sgb.saglik.gov.tr/index.php?lang=en&page=57&newsCat=7&newsID=764>