German Health Card

In January 2006, each of the 71 million legal customers of health insurance in Germany will receive a health smart card. This smart card is a tangible symbol of the government's ambitious plan to create ubiquitous data exchange in the healthcare industry. The project to develop and introduce the electronische Gesundheitskarte (eGK) or electronic health card is being described as one of the largest IT projects in the world, costing an estimated 1.6 billion euros.

The eGK project builds on four earlier pilots in Germany. The project uses the Internet as the backbone and incorporates a shared common platform. The platform provides communication and information sharing between various entities, extending the protocols and interfaces defined by the bIT4health pilot project that preceded the eGK project. The fundamental information component is an electronic health record (EHR); smart cards enable authentication, authorization, and secure data storage. Two cards are involved. One card will hold patient-specific applications and the cardholder's prescriptions (eRezept). The second card will be issued to healthcare professionals and medical service providers. This card will serve as a general service certificate for all persons in the medical community (medical doctors, curators, nurses, and pharmacies). It will also support cryptographic capabilities for digitally signing medical documents and prescriptions.

Because the Internet is the network backbone, patient information can be retrieved anywhere in the world. Several methods are available for interacting with the EHR. Medical data can be stored on the patient's medical card or on the servers on which the application services reside. Access to the application services takes place over a secure communications infrastructure made up of multiple virtual private networks, each catering to a different sector of the healthcare system, such as doctors or pharmacists. The communications infrastructure is protected by access and service gateways. This helps ensure that only authorized persons can gain access to the infrastructure, to the application services, and ultimately, to the data.

Medical staff and patients can communicate with the system via a Web browser or client application, providing secure and flexible access to critical emergency data. Authorized mobile clients, such as portable electrocardiographs, electronic diabetes diary applications on a PDA, or medical equipment, can store information directly to a patient's record. Appliances for home monitoring are in development, along with other smart mobile medical devices that can be operated by the patient. Information is exchanged with health insurance systems using standardized application programming interfaces, ensuring that the EHR information is dynamic and useable by all entities in the working environment.

Smart cards provide a convenient and secure medium for storing medical information. The German healthcare implementation is evaluating using the card in the following six broad categories based on the type and amount of information being stored:

- Insurance cards – containing patient ID and policy information
- Emergency medical cards – containing medical and contact information tailored to the needs of emergency medical personnel
- Hospital admission cards – containing comprehensive insurance and demographic information
- Follow-up cards – storing medical data tailored for specialties such as cardiology, diabetes, dialysis, maternity, pharmacy and oncology
- Universal health cards – containing insurance ID information, key demographic data and link to the patient's medical record

The eGK is targeted for rollout in 2006, as legislated by the German government. The Germans have decided to include prescription information on the card as the first application. No final decision has been made on whether the card, which will include all of the security features of today's smart card technology, will also carry a digital signature.