



Death Registration Key Entry Application Fact Sheet

NYC DOHMH succeeded with the help of DSI to deliver the first Windows based death registration Key-Entry application and achieve the first milestone of the electronic death registration system.

Background

Key-Entry application is a part of EDRS (Electronic Death Registration System), which was an initiative of the New York City Department of Health and Mental Hygiene (NYC DOHMH) to develop an electronic death registration system. It's so important to the Department that New York City, in collaboration with the Social Security Administration (SSA), the National Center for Health Statistics (NCHS), and the National Association for Public Health Statistics and Information Systems (NAPHSIS), is leading an effort to create a national model. No such model now exists and of the few EDR systems available nationwide, none meet national standards. The Department is hosting this effort to draw on the combined expertise of other states to speed implementation in New York City and nationwide.

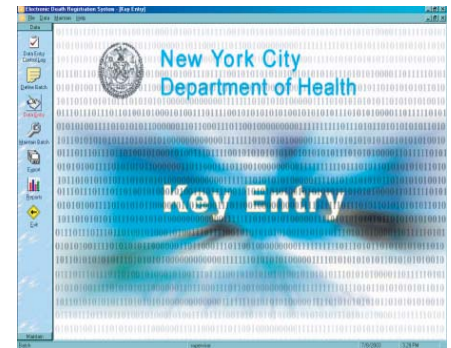
The Key-Entry application is a client server application, which was designed to help the vital statistic agents to enter entire death records received daily from different sources. The application captures all the data keyed in and stores it into a relational database (ORACLE), which is later exported to integrate with the vital records database. The process of entering a death certificate requires multiple steps to be performed sequentially to ensure the correctness and accuracy of data. Each certificate logged into the KE application must be entered twice in order to pass the accuracy test and all corrections must be made through the second entry, which will be the final certificate. The system will always keep a separate copy of the data entered on each time with corresponding information like the

user who enters the certificate and date and time of the entry.

Challenges

The NYC DOHMH also attempted to design a death registration system several years ago. While that project did provide valuable information, it did not result in a product that could lead to the immediate implementation of a usable system. The design and implementation of an electronic death registration system is inherently complex, and these are some of the challenges:

- There are many participants. At least two parties participate in the filing of each death certificate - the physician, who provides medical information, and the funeral director, who provides the demographic information. The medical examiner may also be involved.
- Deaths occur at more than 150 hospitals and nursing homes, and 20 percent occur at home. There are tens of thousands of physicians who may be called upon to certify a death, some only infrequently. An EDR system must be accessible to all users: not only large hospital or clinic systems with advanced technical support, but also independent physicians with relatively little technical expertise or support; and small, family-run funeral establishments, as well as large funeral operations.
- The system must satisfy the Department's health-based data collection needs, and inform SSA of deaths quickly and accurately. Also, since death certificates include sensitive personal information, it must be absolutely secure and confidential.
- The system must be capable of registering deaths and issuing burial permits and cremation authorizations



quickly, thus, enabling immediate disposition of human remains by exchanging information among participants in a secure and confidential manner.

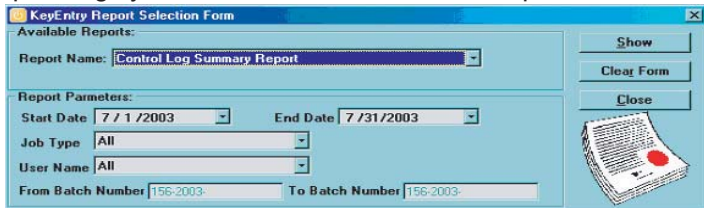
- Most importantly, the system must maintain the integrity of the death registration process and prevent fraud. The simple password used in many other internet transactions is not sufficient, as it inevitably would be shared by many individuals. Unlike many other business-to-business electronic systems, the death registration system cannot tolerate any level of fraud. The impact of even one fraudulent transaction - for example a "faked" death - has serious economic consequences and could also seriously undermine public confidence in the system. An internet-based system will inevitably create an attractive target for this kind of fraud.
- The Key-Entry must replace the old application. At the same time it should comply with the new requirements and should not impose a steep learning curve on the users, which have at least 20 years of experience keying death certificates on the REI system.
- Finally, it must be designed to encourage high user acceptance, or it simply will not work.



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Project Objectives

- Replace the legacy REI system based Key-Entry application and build a new application on top of MS Windows operating system.



- Satisfy the increasingly demanding data volume needs by moving to a new relational database system and take advantage of the Structured Query Language (SQL), which is becoming more powerful and standard in this business.
- Incorporate new city and state death certificate forms and data validation rules with the new application, and also make the new application more flexible in terms of changing the business rules for future needs.
- Build a new application that can easily integrate, complement, and communicate with the whole EDRS system
- Open a new protocol in the Key-Entry application to third parties like hospitals, homes, and funerals to participate in the death registration/verification process
- Build a more cost effective and easily maintainable system.

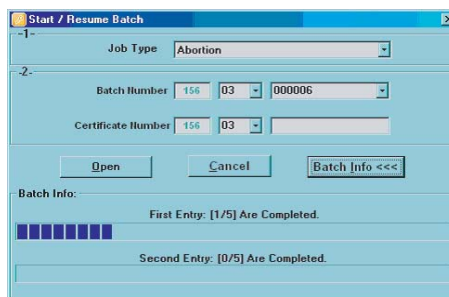
Project Benefits

- Takes advantage of the Department's existing network infrastructure and uses the new Windows 2000 platform as a base
- Uses a more reliable database platform and moves to Oracle RDBMS application for all the data related needs
- More user friendly interface, with a new application the user can move through the forms either using the old tab way or using the pointing mouse to achieve fast and better experience with the entry.

- The new application offers better batch management, it will allow the user to organize the death certificates in batches and inform them when the batch is created, entered, verified, or exported with all the work status reports.

- Better handles the data verification process with the in-process tool tip, advises on errors, and gives the user a comparative certificate history screen to allow them to correct errors.

- Required fields on certificate cannot be skipped and have to be entered before saving the certificate.
- Start and resume a batch will allow a user to stop the work at some point and allow them to resume at the point where they left off when ready. No need to write down or remember where they left off
- More administrative functions to handle exceptional situations like split batch, resize bath, delete batch, auto-verify batch, and revert batch.
- Comprehensive reporting tool that will allow the user to print a wide range of reports based on multiple criteria, like date range, person name, certificate type, and job status.
- A new export function that allows the users to extract all the data entered in a given period of time as a flat file and drop it off either on a network shared drive or a hard disk for later process and integration with other databases.
- New GeoCode validation that will allow users to validate addresses against the city planning web service.



Technology High Lights

- The application is built using a combination of VB6, SQL Language on top of Oracle8i and Windows environment.
- A truly 3-tier application consisting of the Application Server, which host all the data validation and business rules routines, Client tier, which consists of the front-end application, and the database tier, which consists of Oracle database schema and objects.
- The use of the GeoCode web-service to build an address validation function that communicates with the client application through HTTP and SOAP protocol.
- Enhance security and user management by using 3 layers of security and user authentication. Windows Logon, Database Security, and the application user and policy management.
- Use visual and audio affects to get the users attention in case of data entry errors and warnings.

Client and Business Units

- NYC DOHMH - Vital Statistics

Project Duration

- 02/2001-06-2003 Development phase
- 07/2003-Current Maintenance phase

Technology Platform

- MS Windows 2000
- Oracle8i Server
- VB6
- SQL
- COM and ActiveX
- Web-Service/SOAP
- XML
- 3 Tier Architecture

Related Government regulation

- Please refer to <http://www.nyc.gov/html/doh/>

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