



Commonwealth of Kentucky

2007 NASCIO Recognition Awards Nomination
Category: Digital Government: Government to Business (G to B)

Kentucky Certificate of Birth, Hearing, Immunization and Lab Data (KY-CHILD)

Cabinet for Health and Family Services

The Department of Public Health and Office of Information Technology within the Kentucky Cabinet for Health and Family Services (CHFS) developed a system called KY-CHILD (the KY Certificate of birth, Hearing, Immunization and Lab Data (KY-CHILD) system). KY-CHILD is a web based application that automates the collection of health and human services data pertaining to the birth of a newborn. This application went into production in December 2006 and is used by all Kentucky birthing facilities statewide as well as program areas of the Cabinet for Health and Family Services. This application allows for electronic collection and submission of data related to Certificate of Live Birth, Certificate of Still Birth, Newborn metabolic and hearing screenings required at birth and will provide the initial data feed for a statewide Immunization Registry.

Executive Summary

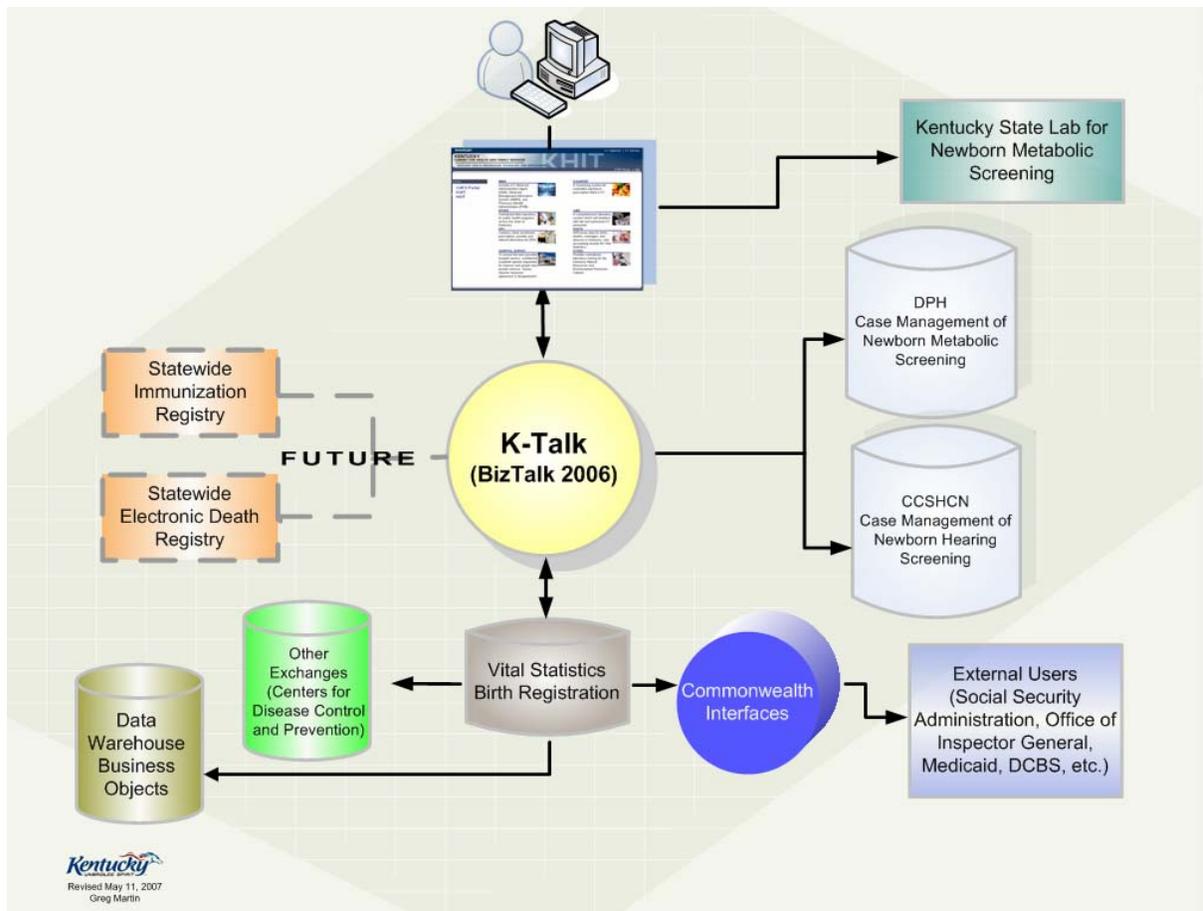
In December 2006, the Kentucky Cabinet for Health and Family Services (CHFS) implemented the KY-CHILD (**KY** Certificate of birth, **H**earing, **I**mmunization and **L**ab **D**ata) system. KY-CHILD is a web-based application that provides automated collection of health and human services data pertaining to the birth of a newborn. This application is used by all Kentucky birthing facilities statewide as well as various program areas within the CHFS. This application allows for electronic collection and submission of data related to Certificate of Live Birth, Certificate of Still Birth, newborn metabolic and hearing screenings required at birth and will also provide the initial data feed for a statewide Immunization Registry.

Implementation of KY-CHILD was a collaborative effort involving public and private organizations. The project included various departments within the CHFS as well as hospitals and birthing facilities across the state as external business partners. Implementation of this application has resulted in improved data quality and improved efficiencies in birthing facilities statewide as well as in various program areas within the CHFS. Birthing facilities statewide now have an automated way to collect and transmit data pertaining to a newborn's certificate of live birth and stillbirth, metabolic screenings, and hearing screenings using one application. In addition, all metabolic and hearing screenings performed for children admitted in these facilities is electronically tracked and has the potential to become part of these children's future electronic medical records. Automatic data collection and automatic transmission of data has improved quality and accuracy of data collected as well as the timeliness of data submission. This application further provides ad-hoc intelligent reporting capabilities for statistical analysis of data collected and fulfills state and federal public health reporting requirements.

Project Description

KY-CHILD provides a single integrated application and a single point of entry to manage all the critical data collection events associated with the birth of a newborn in the state of Kentucky. KY-CHILD allows patient demographic data to be centralized in a “base” system and shared seamlessly where appropriate among different Health and Human Services programs within Kentucky. Staffs in Kentucky birthing facilities use this application 24/7 to capture data pertaining to Certificate of Live Birth, Certificate of Still Birth, Newborn Metabolic Screening and Newborn Hearing Screening. Data collected is seamlessly transmitted to various data processing points within the CHFS; such as the Office of Vital Statistics to register the birth, the State Lab for metabolic screening tests, the Department of Public Health for case management of abnormalities identified with metabolic screenings, and the Commission for Children with Special Health Care Needs for case management of hearing screenings performed at the hospitals. KY-CHILD eliminates prior redundant systems and redundant data collection needs and has eliminated much of the tedious and manual paper based processes that were earlier required of birthing facilities as well as of various program areas within the cabinet.

Depicted below is high level representation of the KY-CHILD system and all its interfaces:



KY-CHILD is a web based application developed in-house by CHFS staff using the latest in technology platforms. The system is an n-tiered application built on .Net framework. This application was developed in C# utilizing SQL Server 2005 as the backend database. In addition, Microsoft's BizTalk is used as the middleware to transmit data across the various health and human service systems. The application was implemented statewide in December 2006, using a state of the art, robust and scalable infrastructure. Sophisticated matching algorithms were implemented to establish uniqueness of information gathered. SQL reports are utilized for web based reporting and printing of all necessary forms and certificates. In addition, the application utilizes Business Objects to provide business intelligence to internal health and human service users.

This web based application also provides the foundation for a base demographic record for each newborn as well as their parents. Each newborn is registered and assigned a unique identifier that can facilitate the formation of a patient master record. This identifier assigned will be used in the near future by other public health applications.

Significance to State Government

State and Federal Regulations require various health and vital statistics data to be reported for newborns. The data collection for newborns is primarily initiated at birthing facilities across the state and much of this data is also required to be reported to the Federal government. Prior to implementation of KY-CHILD, this data was being collected through multiple manual processes and disparate information systems in hospitals and birthing facilities. KY-CHILD provides single point of collection for this required data and transmits the data to appropriate subsystems via secure method and assists in streamlining the business processes. The ad-hoc reporting features in KY-CHILD allow for statistical analysis of the data collected and fulfill the state and federal public health reporting requirements.

KY-CHILD is a mission critical system that provides automation for data management pertaining to a newborn's health related events. This automation has resulted in improved efficiencies statewide in birthing facilities as well as in various program areas within the CHFS. Improved accuracy of data collected and timeliness of data managed and reported has crucial and valuable effects on the lives of newborns and their parents.

Benefits realized by service recipients, taxpayers, agency or state

Prior to the implementation of KY-CHILD, various manual paper based processes as well as disparate systems were being used to fulfill the business requirements.

In the birthing facilities, multiple paper-based forms containing many common data elements were hand written and faxed and/or mailed to various CHFS program area sub systems. Consolidation of common demographic data collection and implementation of intelligent navigations and proper edits have resulted in improved efficiencies, improved data accuracy and decreased work load in birthing facilities across the state of Kentucky. KY-CHILD also provides an electronic mechanism to track all metabolic screenings and hearing screenings

performed on newborns admitted in the hospitals. These electronic screening records have the potential to become part of these patients' electronic medical records in the future.

Various departments within CHFS derive many benefits from this application as well. These include the Office of Vital Statistics, State Lab, Division of Epidemiology and the Division of Maternal and Child Health all within the Department of Public Health and the Commission for Child with Special Healthcare Needs. Prior to implementation of KY-CHILD, staff from CHFS program areas had to interpret hand written paper-based forms and enter this data into various CHFS sub systems. KY-CHILD provides a single point of entry for data required by these sub-systems. Data collected in birthing facilities is seamlessly transmitted to the back-end CHFS sub systems; there by eliminating the very tedious and manual processes of interpretation of hand written paper-based forms as well as the manual entry of this data in the back-end sub systems. In addition, electronic transmission of data has eliminated many data entry errors and has resulted in overall improved efficiencies and satisfaction.

Ultimately, the citizens of Kentucky (newborns and their families) benefit from this application. The accuracy of data collected and the improved timeliness of data reported via KY-CHILD has far reaching benefits for the newborns and their families.

Realized return on investment, short-term/long-term payback

KY-CHILD was developed in house by CHFS Office of Information Technology staff for under \$2M. On site training of hospital staff across the state was provided by the Office of Information Technology. Eight pilot sites were implemented in October 2006. A phased roll out approach was conducted from October to December with all birthing facilities across Kentucky using KY-CHILD by December 20, 2006.

KY-CHILD has improved data quality and collection in the birthing facilities statewide and replaced previous manual paper-based processes which were being performed at the birthing hospitals across Kentucky. Efficiencies from CHFS staff have been realized through the automated data feeds received from KY-CHILD replacing the prior manual processes and allowing staff to focus more time on the healthcare related tasks of their jobs.

Timeliness and quality of health and human services data that is reported to the National Center for Health Statistics and the Center for Disease Control has improved as a result of KY-CHILD implementation. Although it is difficult to calculate a cost savings on improved data quality and collection, the efficiencies gained from this application are wide spread and have far reaching effects on Kentucky's newborns and their families.

KY-CHILD is planned to be the foundation for many other Public Health automated systems. In the near future, KY-CHILD will serve as the gateway to the envisioned Statewide Immunization Registry application as well as the Statewide Electronic Death Registration System. The unique identity established for children at birth in this application has a potential to be the master record utilized by other cabinet systems. KY-CHILD allows patient demographic data to be centralized in a "base" system and shared seamlessly where appropriate. Cost savings for improved data quality are difficult to quantify, but in the short time frame that KY-CHILD has been in production, many efficiencies have been already realized.