Electronic Collection of Marriage and Divorce Statistics: Findings from Seven States

Final Report

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Table of Contents

I. INTRODUCTION

A. Project Background

The U.S. Department of Health and Human Services, Administration for Children and Families (ACF) and the Office of the Assistant Secretary for Planning and Evaluation (ASPE), contracted with The Lewin Group and its subcontractor, The Urban Institute, to explore options for the collection of marriage and divorce statistics at the national, state and local levels. The project explored information collected through national surveys as well as information that states and local entities, such as courts and county clerks, collect through their vital records systems.

One key project task involved site visits to a select number of states to learn more about their vital records systems (see Note below for more information on these systems). This task builds on a large-scale survey effort, in which project staff developed and administered a survey of state-level vital registrars, and companion surveys for local-level staff who collect and report marriage and divorce information, to learn about data contained in state vital registration systems and how information is transmitted from the local to the state level. In selecting candidate states for site visits, the team assessed the survey results to determine which states were more technologically advanced in the collection and/or use of marriage and divorce statistics.

Issues the team explored on site included:

- The extent to which states use the most sophisticated vital statistics systems that are web-accessible, containing central databases that offer online data entry capabilities at local offices, integrated business functions, and records that are immediately accessible by appropriate local- and state-level users.

- The extent to which marriage and divorce information is stored in electronic databases at the state level and whether marriage and divorce data are housed in the same database.

- Whether local areas automate marriage and divorce data collection in states that have electronic databases, or whether city/county clerks and clerks of court continue to use a paper-based system to collect marriage and divorce records.

- The origin of automation efforts (i.e., state or local level).

- The impetus for creating electronic data collection, transmission and storage systems.

A Note on Vital Records. Vital records are administrative data. Each marriage and divorce that occurs in the United States is associated with a vital record. These records—or certified copies of them—are used to define legal status and associated benefits and to determine eligibility for programs and benefit amounts, among other uses. Vital records are also used to calculate marriage and divorce rates by state; this information can be aggregated for national estimates. These marriage and divorce statistics are used for policy development, planning, program monitoring and evaluation.

State laws govern the collection and storage of vital records. Thus, there is wide variation in terms of what they collect and how they collect it. Some states collect simple counts of marriages and divorces, while others collect detailed demographic and other information about couples involved in the event (e.g., educational status, previous marital status, employment) that can be used to describe the characteristics of couples getting married and divorced.

Systems for collecting marriage data are different from and often separate from systems for collecting divorce data. For both marriages and divorces, the event is recorded not at the state level but in a local-level entity—either a county or city clerk, for marriages, or a clerk of the court, for divorces.

The method by which states collect information also varies. Some collect information from marriage and divorce documents electronically from courts and local offices where events are recorded, while others use a paper-based system to collect information. The way in which data is collected and ultimately stored has implications for its use. States that store data electronically have easier access, which facilitates monitoring trends, analyzing policies and evaluating programs.

B. Methodology

The site visits explored the experiences of seven more technologically advanced states in terms of their collection, aggregation, and uses of marriage and divorce vital statistics data. The project team used two sources of information to narrow the field of potential site visit states. First, staff consulted the results of the state survey to determine which states have or are in the process of developing web-based or electronic systems for marriage and/or divorce data. Second, staff worked with the National Association for Public Health Statistics and Information (NAPHSIS) to determine which states have reengineered their birth and death systems by implementing or developing electronic birth registration systems (EBRS) and electronic death registration systems (EDRS). These reengineered systems are web-based and link state electronic systems with those of primary data providers (e.g., hospitals, funeral homes). In this way, integrated current information is readily available to authorized individuals and stakeholders. The assumption was that lessons from states with strong electronic birth and death registration systems could be useful for states that are considering how to gather electronic data from disparate and diffuse sites.

The review of these sources indicated there are not many states that have web-based systems for collecting and storing marriage and divorce information. It was more common to find states that created electronic methods for storing information at the state level, while primary collection and transfer of data remains largely paper based.

Exhibit 1 lists the states visited and the key agencies staff met with on site. The team conducted site visits between July and September 2007.

Exhibit 1: Study Sites

State	Date of Visit	Key Agencies
Colorado	August 28 and 29, 2007	Colorado Department of Public Health and Environment, Center for Health and Environmental Information and Statistics Colorado Department of Personnel and Administration, Division of Central Services', Integrated Document Solutions Arapahoe County Clerk
Delaware	July 3, 2007	Delaware Department of Health and Social Services, Division of Public Health, Health Statistics Center Kent County Clerk of Peace
Hawaii	September 5, 2007	Hawaii Department of Health, Office of Health Status Monitoring
New Hampshire	August 23, 2007	New Hampshire Department of State, Division of Vital Records Administration New Hampshire Department of Safety, Office of Information Technology
Ohio	September 7, 2007	Ohio Department of Health, Office of Vital Statistics Franklin County Probate Court Franklin County Clerk of Courts
South Dakota	September 17 and 18, 2007	South Dakota Department of Health, Office of Data, Statistics, and Vital Records Hughes County Register of Deeds Hughes County Clerk of Courts
Utah	July 25 and 26, 2007	Utah Department of Health, Center for Health Data, Office of Vital Records and Statistics Utah Department of Workforce Services, Office of Work and Family Life, Utah Commission on Marriage Salt Lake County Clerk Utah County Clerk

The site-specific discussions varied, depending on the type of system the state had in place. In general, the project team explored how the state ventured into the realm of electronic data storage and/or collection. Other topics included:

- Current configuration of the marriage and divorce statistics systems
- Recent enhancements to the marriage and divorce systems
- The impetus for recent upgrades/changes
- Integration of the marriage and divorce systems with birth and death systems
- Use of marriage and divorce data
- Recommendations for other states that are considering upgrades, including any lessons learned from implementing electronic death or birth registration systems

Following each visit, the team summarized the discussion in a brief site visit report and sent a copy of the report to the key discussants to review.

C. Structure of the Report

This report summarizes the findings from site visits to seven states. In addition to this introduction, the report includes the following sections:

Section II provides an overview of the state and local electronic systems. This section first describes the marriage system, followed by the divorce system. It also summarizes how data are stored at the state level.

Section III describes how state and local staff (when applicable) use marriage and divorce data.

Section IV summarizes key findings from the visits and documents lessons states learned in developing their electronic systems.

Appendix. The state-specific site visit reports are included in the Appendix.

II. DEVELOPMENT OF ELECTRONIC SYSTEMS

A. Overview

The nature of system upgrades varies considerably by state. Some states developed sophisticated web-based systems for collecting and storing information, while others still rely on paper-based records that are subsequently entered into databases.

Staff cited a number of reasons for developing electronic systems to collect and/or store marriage and divorce information (see ***Box 1***). The most common reasons were reducing staff costs associated with collecting, transmitting and storing data, and facilitating the production of certified copies of key documents. A third impetus was improving the timeliness and quality of data; this was cited by states with web-based systems.

Box 1: Why Create Electronic Systems?

Reducing the Costs Associated with Vital Records. Many states mentioned the costs associated with staff time, as well as the financial costs of older technology. Local offices in Utah, Colorado and Delaware, for example, initiated their own electronic systems for capturing marriage license information because of the time-consuming nature of gathering information from couples and transcribing it by hand. State staff in South Dakota noted the staff-related costs associated with a paper-based system were substantial, especially if a record needed to be changed. According to one staff person, "In the paper-based system, any changes required the original paper record to be pulled from microfilm, the changes noted on the record and in many cases a new record typed. These changes then needed to be shared with the local registrar so that the local copy of the record could be changed. This process was time consuming, and the practice of trying to keep two sets of the same records up to date and accurate was extremely problematic."

In New Hampshire, the costs of maintaining toll-free lines that the cities and towns needed in order to access the client server via modem was an impetus for moving to a web-based system. The state supplies each city and town with the necessary hardware and broadband internet connection (if not already available in the town) required to access the web-based system.

Producing Certified Copies. A number of states cited the ability to locate and print copies of marriage or divorce certificates from any local jurisdiction in the state as a reason for moving towards an electronic system. The state-level vital records office, or any local county clerk (marriage) or clerk of the court (divorce), can find and make a copy of a certificate, regardless of where the marriage or divorce actually occurred. A number of staff noted that the increased accessibility of these documents provides a public service to citizens. In addition, the ease of obtaining these documents has resulted in greater demand, with the automated functionality helping to increase fee-based revenue from issuing certified copies of documents.

Staff reiterated that, although compiling statistics and conducting research can be important uses of marriage and divorce data collection and storage systems, the systems are designed primarily to capture and document key vital events and that automation seeks to facilitate the collection and storage of records associated with these events.

States, and in some cases counties, financed their electronic systems, often relying primarily on fees generated from certified copies of marriage and (to a lesser extent) divorce certificates. This sets marriage and divorce systems apart from those that record other vital events. The Social Security Administration (SSA), for example, has invested funding into state electronic death verification systems because timely information about deaths is critical for SSA to maintain accurate benefit payments. There has been no similar national push for electronic marriage and divorce information. Conversations with SSA staff indicated the benefits of supporting state electronic systems for marriage and divorce collection do not outweigh the costs (see ***Box 2***).[1]

[1] Project team staff had a conference call with SSA officials on January 16, 2008 to learn how SSA uses marriage and divorce information and how change in marital status is reported.

Box 2: Social Security Administration use of Marriage and Divorce Information

SSA uses marriage and divorce information for a variety of purposes. Staff involved in income security programs use information to determine eligibility for benefits, as well as benefit levels. The Office of the Actuary uses statistics to estimate the prevalence of marriage and divorce (marriage and divorce have traditionally been associated with female labor force participation, which in turn affects benefit eligibility and amounts). The Office of Demonstration Programs and Office of Disability Programs use statistics for research.

Currently, SSA relies on individuals to report marriage and divorce events to SSA. The agency conducted an internal cost/benefit study to determine if receiving marriage and divorce information electronically would result in savings. SSA determined that savings would be minimal because self-reporting status change has been effective. That is, people tend to report status changes when benefits are at stake.

Potential Role of Real ID Act of 2005. SSA staff noted that implementation of the Real ID Act will likely affect the volume and timing of self-reports of events and associated name changes. The Act requires that before a driver's license is issued, the state will confirm with SSA the Social Security Number of the applicant. The name associated with the SSN must match the name on the driver's license. Thus, if an individual changes her name following a marriage or divorce and applies for a new driver's license, she will need to report this information to SSA.

B. Description of State and Local Systems

There are four basic steps in collecting and storing marriage and divorce data: 1) collection of data by the city/county clerk or clerk of court; 2) storage of data at the local-level; 3) transfer of data from the local office to the state office; and 4) storage and processing of data at the state-level. Automation can facilitate any of these steps.

Systems for collecting marriage data are different and separate from systems for collecting divorce data. Marriage data are generally collected at the office of a county or city clerk. Divorces are recorded in the courts where they are granted. ***Exhibit 2*** lists the number of local marriage and divorce data collection sites for each state visited.

Exhibit 2: Local Marriage and Divorce Data Collection Sites by State

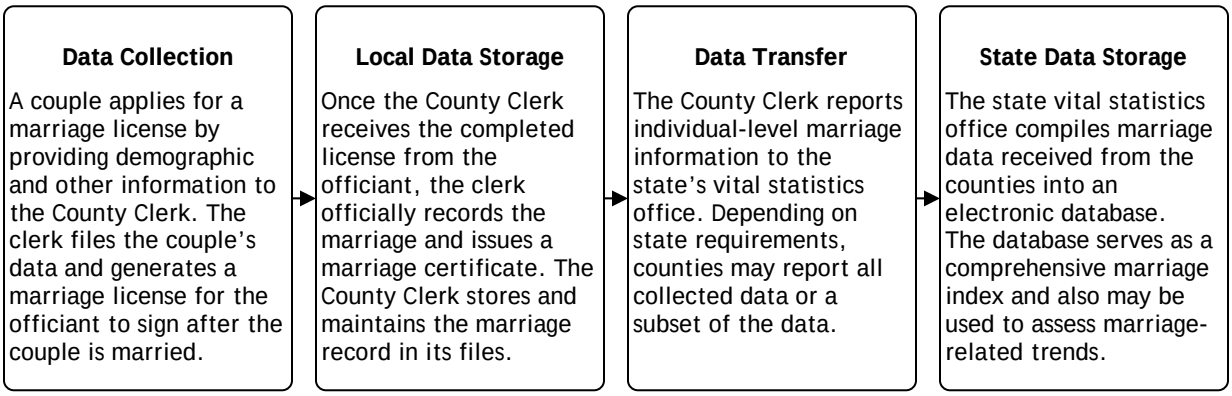
State	Marriage data collected by:	Divorce data collected by:
Colorado	64 County Clerks	22 District Courts
Delaware	3 County Clerks of Peace	3 Family Courts
Hawaii	Marriage license agents on neighbor islands; Department of Health in Honolulu	4 Family Courts
New Hampshire	234 City/Town Clerks	6 Family Courts and 11 Superior Courts
Ohio	88 Probate Courts	88 County Courts of Common Pleas
South Dakota	64 County Registers of Deeds	64 County Courts
Utah	29 County Clerks	5 District Courts

The following subsections describe the marriage statistics system, the divorce statistics system, and the storage of marriage and divorce data at the state level.

1. Marriage Statistics Systems

As noted above, there are four primary points at which marriage data could be automated: data collection, local data storage, data transfer, and state data storage. ***Exhibit 3*** depicts the typical movement of marriage data through the local and state vital statistics systems.

Exhibit 3: Typical Movement of Marriage Data



Site visit states varied in terms of the extent to which aspects of their marriage statistics system are automated, as well as the sophistication of these systems (see ***Exhibit 4***). The exhibit also shows that the method for collecting marriage data differs by county in three of the seven states.

Exhibit 4: Electronic Use within State Marriage Statistic Systems

State	Collection	Local storage	Transfer	State storage
Colorado	Varies by County	Varies by County	Varies (FTP[2] or paper)	Electronic database
Delaware	Electronic form	Electronic database	Electronic transport (FTP)	Electronic database
Hawaii	Electronic form	Stand-alone electronic files	Electronic transport (FTP)	Electronic database
New Hampshire	Web-based form	Web-based database	Web-based transfer	Web-based database
Ohio	Varies by County	Varies by County	Paper abstracts mailed	Electronic database
South Dakota	Web-based form	Web-based database	Web-based transfer	Web-based database

[2] File Transfer Protocol

State	Collection	Local storage	Transfer	State storage
Utah	Varies by County	Varies by County	Varies (FTP or paper)	Electronic database

The variation in collection and reporting structures often (but not always) reflects whether the state or local level initiated the automation efforts. The most advanced systems, using web-based forms and reporting, were initiated at the state level in South Dakota and New Hampshire. The Hawaii Department of Health is in the process of developing a web-based system.

In the other study states, the development of electronic systems began at the local level. In Delaware, the offices that issue marriage licenses in each of the three counties, the Clerk of the Peace, independently developed electronic systems for collecting, storing and transmitting marriage data. Staff in one county reported that it was easier and more time efficient to enter marriage license information directly into a computerized form than hand-write all of the fields of the application. Local offices in Colorado, Ohio, and Utah began the electronic process, often to reduce staff burden. As a result, there are multiple processes within these states for collecting and reporting marriage information.

Statewide electronic collection and transmission. New Hampshire and South Dakota use integrated web-based systems to coordinate their collection of marriage statistics. For example, each of South Dakota's 64 Register of Deeds uses the state's electronic system to collect information about the marrying couple and issue marriage licenses. The South Dakota Office of Data, Statistics and Vital Records developed the marriage module and piloted it in five local registrar officers. It was then implemented statewide using a staggered schedule. The system is web enabled using secure encryption, allowing users to enter data into the system from any computer with internet access. ***Box 3*** describes the local-level data collection process in more detail. Similarly, all but 5 of 234 cities and towns in New Hampshire collect marriage information using the state's web-based application.[3] Couples fill out a Certificate of Intention to Marriage; the city or town Clerk populates a web form that then generates a marriage license. Once entered, the information is stored in the system.

In both states, when the officiant returns a signed copy of the license, the Clerk enters the date of marriage into the system and the record is complete. All data entered into the system can be viewed by authorized users immediately.

[3] The five towns not using the system are extremely small. They do not use the web-based system because of difficulties securing a broadband internet connection.

Box 3: Marriage Data Collection in One South Dakota County

Staff at the South Dakota Department of Health and the Hughes County Register of Deeds office described the marriage data collection process as follows: The Register of Deeds types the couple's license application information directly into the electronic system and captures their signatures using an electronic signature pad. Once the license is completed by the officiant and returned to the Register of Deeds office, the Register of Deeds enters the additional information from the completed license into the state system and assigns a state file number to the marriage and enters additional information about the ceremony. Once a record is saved in the system, it is stored in the central database, giving appropriate users immediate access to the information.

Two other states—Delaware and Hawaii—do not use web-based systems. Instead, data for the marriage license are entered into a local system, a license is produced, and once the officiant returns the paperwork indicating the marriage occurred, the record is completed and sent to the state electronically.

In Delaware's three counties, Clerk of the Peace staff ask the couple questions from the license application and inputs the answers directly into a windows-based program. The couple signs the application electronically. A marriage record is complete when the Clerk of Peace enters information about the ceremony provided by the officiant into the system. Once a month, the system creates an extract file of complete marriage records for that month. The Clerk of Peace uploads the file using a specified FTP path to the University of Delaware, a contractor for the Delaware Department of Health and Social Services. Information is placed on a website and downloaded by state staff for import into the state's marriage database. As noted above, although all of the Clerks of the Peace collect and transmit data electronically, the development of the systems began at the county level. Because the counties used the same contractor to develop their systems, the format for collecting the information, as well as transmitting it to the state vital statistics office, is similar across all parts of the state.

The process in Hawaii is similar. The Department of Health developed a marriage license template that is housed on the stand-alone computers used by marriage license agents on the neighbor islands. The template captures all of the marriage license information. Each agent exports a file via the internet each month of complete records to the Department of Health, where it is integrated into a database. The process is different at the Department of Health office in Honolulu, where staff enter data directly into a database. As described further below, the state is developing a web-based system for collecting and storing marriage information.

Varying methods for collecting and transmitting data. In Colorado, Utah, and Ohio collection and transmission of data occurs in a variety of formats. Individual counties have discretion as to how they collect and transmit marriage information. Many still use paper-based systems.

At the time of the site visit, about one-quarter of Colorado counties (17 of 64) collected marriage information electronically. This includes the large counties, with the exception of Denver. These counties developed their own systems, independent of the state and each other. As a result, the format for collecting information differs widely. ***Box 4*** shows an example for a suburban Denver county. Although "electronic" counties vary in terms of the nature of their systems, the state developed a uniform method for these counties to report data. Several state

agencies, in conjunction with a Task Force comprised of representatives from the Clerks and Recorders Association, developed a uniform file layout for marriage records that these counties use when submitting data. The 17 "electronic" counties send data to the state via FTP on a monthly basis. The remaining Colorado counties use paper-based systems to collect and transmit marriage information. The paper files are sent to the state monthly to be coded and entered into the marriage database.

Box 4: Marriage Data Collection and Transmission in Arapahoe County, Colorado

When a couple applies for a marriage license at the County Clerk's office, a deputy clerk asks them a series of questions used to populate the electronic version of the marriage license application. Once the deputy clerk has filled out all of the necessary fields, he or she prints a copy of the form for the couple to review and sign. This information is then used to automatically populate a marriage license and certificate with the couples' names. The couple also receives a form with instructions on how to return the certificate to the clerk following the marriage. Once the couple gets married, these forms are sent back to the County Clerk where they are reviewed and the marriage is recorded in the computer system. If the couple has requested a certified copy of their marriage certificate, the County Clerk will send a copy after recording the event.

The county's computer system automatically uses the data from the marriage license applications to populate a text file for the Department of Public Health and Environment (the marriage is only officially recorded in the data file once county clerk staff have received the completed license). Each month, a deputy clerk pulls this text file from the database and sends it to the state via FTP. The county uses a data layout provided by the state to ensure that the appropriate fields and formatting are used in transmitting the data.

The process in Utah is similar. Five of 29 counties collect data electronically. These counties developed their own systems.[4] The system produces a marriage license. Once staff receive the completed marriage license from the officiant, they enter the relevant information about the ceremony into the database. Completed records are flagged and sent to the state Office of Vital Records and Statistics (OVRS) monthly. This information is merged into an electronic database. The remaining counties, including the largest county (Salt Lake), use paper-based systems. These counties send copies of marriage license applications to the state office monthly where the information from paper forms is entered into an electronic database (see ***Box 5***).

Box 5: Ensuring Data Reliability

The Utah Office of Vital Records and Statistics designed a multi-step process for entering data from paper forms into a database to ensure maximum data reliability. The steps are as follows:

Each document is assigned a state file number that serves as a unique identifier.

Each document is coded; number codes that correspond to the answers in each data field are written onto the document.

A second staff person checks each document to ensure no codes were assigned incorrectly.

After verification of the coding, a staff person enters the data from the document into the appropriate state database.

A different staff person then reenters this same information to ensure no data entry errors were made.

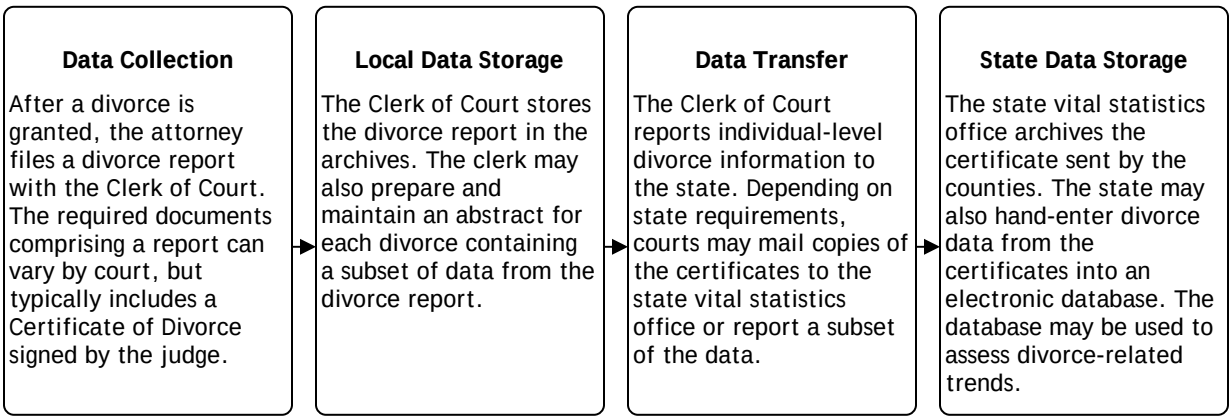
[4] Utah County IT staff, for example, wrote a program using PowerBuilder with an Oracle database management system.

Finally, Ohio, the largest state visited, uses a primarily paper-based system to collect and transmit marriage information to the Office of Vital Statistics, where information is eventually entered into an electronic database. Some counties developed their own electronic systems to collect and store marriage data. These systems were not specially designed to be compatible with each other or with the state's marriage database. Thus, while counties use their electronic systems to collect data, they still must print and mail paper copies of marriage abstracts to the state office monthly. The abstracts are then forwarded to a contracted agency for entry into the database.

2. Divorce Statistics Systems

As with marriage, there are four primary points at which divorce data could be automated (see ***Exhibit 5***). The analysis of divorce data only includes six states, rather than seven, because Hawaii does not collect divorce-related information. The state got so few requests for certified copies of divorce certificates that it was not cost-effective to collect divorce-related information and enter it into a database. This information resides in the courts. Compared to marriage, the systems for collecting and storing divorce data in the six sites were less technologically advanced.

Exhibit 5: Typical Movement of Divorce Data



Although each site visited compiles information at the state level into an electronic database or web-based system, divorce data collection and transmission remains primarily paper-based. ***Exhibit 6*** lists the extent of automation in the sites' divorce statistics systems.

Exhibit 6: Electronic Use within State Divorce Statistic Systems

State	Collection	Local storage	Transfer	State storage
Colorado	Paper based	Paper	Paper forms mailed to Office of the State Court Administrator; text file then sent to state	Electronic database
Delaware	Paper based	Paper	Paper certificates mailed	Electronic database
New Hampshire	Paper based	Paper	Paper certificates mailed	Web-based database
Ohio	Paper based	Paper	Paper abstracts mailed	Electronic database
South Dakota	Paper based	Varies by locality	Varies by locality	Web-based database
Utah	Paper based	Paper	Paper certificates mailed	Electronic database

All six states described a similar paper-based process for divorce data collection in their courts. Generally data is collected on a divorce certificate that the plaintiff's attorney typically completes on behalf of his/her clients. In five of the six states, state-level vital statistics staff receive paper copies of divorce information, generally on a monthly basis. Staff in the vital statistics office, or a partner organization in the cases of Delaware and Ohio, enter information from the paper copies into a database. Officials in Delaware plan to collect limited divorce information electronically. It will be imported directly into the state's Electronic Vital Records System. Many divorce certificate fields, however, will need to be hand entered.

The exception to the paper transfer method is Colorado. Courts send paper copies of divorce certificates to the Office of the State Court Administrator. This agency keys data into a database-readable text file and then sends the file to the state vital statistics office monthly.

At the local court level, divorce records—either certificates or decrees—may be maintained electronically. For example, several counties in South Dakota currently populate divorce abstracts electronically and email files containing divorce information to the state for direct import into the state's electronic system. However, the vast majority of local offices within the visited sites maintain paper files and mail paper abstracts to the state, which are then hand-entered into the state's divorce database.

Sites cited various reasons divorce statistics collection and reporting systems are less technologically developed. This includes insufficient initiative at state and local levels or lack of cooperation from courts. State staff in South Dakota indicated that because divorces occur infrequently as compared to other vital events, there would not be much payoff to transition the divorce statistics system to a state-wide electronic collection system. The site visit to New Hampshire revealed that their courts have been resistant to enabling an electronic transfer of

data. The Division of Vital Records Administration (DVRA) has tried to persuade the courts to participate in the electronic registration of divorces on several occasions. DVRA has attempted to engage the legislature in passing state law requiring the electronic sharing of these data, but it has so far been unsuccessful. The State Registrar expressed that the courts were concerned that electronic data collection would create additional data entry and editing tasks for its staff. In Hawaii, when the Department of Health proposed developing and financing an electronic method for collecting divorce data, the courts testified against the legislation.

Significant barriers remain even when courts agree to transition to an electronic system, as observed in Ohio. For the past 15 years, the Ohio Supreme Court has been discussing the development of an electronic system to record pleadings, court orders and other legal documents, which would include those related to divorce cases. However, differences among judges regarding details of the proposed system have hampered the development of the electronic system.

3. State-level Storage of Data

Project staff explored the extent to which marriage and divorce data are combined into one database or web-based system and whether they are stored with birth and/or death data. ***Exhibit 7*** summarizes the data systems in each state and includes information on how data are stored at the state level.

In South Dakota, New Hampshire and Delaware, marriage and divorce information is, or will be, housed in the same system that stores birth and death data. However, the ability to link records will be limited except in South Dakota. The system in South Dakota has a built-in electronic match system that can match two vital events and store the information from one record onto the other. The New Hampshire Vital Records Information Network maintains individual-level data for birth, death, marriage and divorce events in a web-based system but because the database is not entirely relational, it is not possible to link records from different events. In both states, records entered into the web-based systems are available immediately to staff with access to the system.

In Delaware, state staff expect their system to combine births, deaths, marriages and divorces into one database. At the time of the site visit the system was not web-based; only birth data are input directly by hospital staff into the database via the secure web-based interface. Marriage and divorce modules are expected to be added by early 2008. The death module will be added last. State staff report that the interface has been problematic for some physicians and funeral home directors.

The other states have free-standing marriage and divorce databases. Although Colorado has separate marriage and divorce databases, a subset of information about both types of events is imported into a web-based system that can be accessed by approved users across the state who need to verify an event or produce an abstract certifying an event. Marriage information includes names of bride and groom, county where marriage occurred, and date of marriage. Divorce information includes names of husband and wife, county where divorce occurred, decree type, docket number and decree date. Prior to 2007, this information was available on a website and could be accessed by any interested party. In 2007, the state scaled back access due

to concerns about providing individual-level data to the general public. Today the site can be accessed only by approved state and local government staff.

Hawaii currently has a database that stores the information that is forwarded monthly by the marriage license agents (as noted above, state staff in Honolulu can input information directly into the database). The state is developing an electronic marriage system. It will not be integrated with birth and death systems, but it will facilitate the collection of marriage information across the state. Marriage is the most common vital event in Hawaii, and two-thirds of marriages occur to out-of-state or out-of-country residents. The system is modeled on the state's highly regarded electronic death verification system (see ***Box 6***). State staff converted the DOS-based marriage system into a web-based system and is piloting it in one jurisdiction. Eventually, marriage license agents will be able to enter data directly online. The system will include a "marriage menu" in which staff (and eventually others) can search for an existing license. The state would like to include an on-line marriage application in which couples fill out the relevant information on-line and staff or the marriage license agent would serve as a witness. It is the same concept as an airline "e-ticket"—the passenger is not officially checked in for a flight until he or she shows documentation proving he/she is in fact the passenger.

Box 6: Using the Electronic Death Registration System (EDRS) as a Model

Hawaii's EDRS has two key forms, each filled out by a different official. Mortuaries/funeral homes fill out the personal information form and receive confirmation that the registration of the death is reported to the Office of Health Status Monitoring (OHSM) within the Department of Health (DOH). All mortuaries/funeral homes use the on-line form. Physicians are responsible for completing the medical information form (thus certifying the cause of death). This form is also available online, although some physicians continue to use a paper form. For non-participating physicians, the mortuaries complete the personal information electronically and "drop it to paper" for the physician to complete the medical information by hand and fax or E-fax the information to OHSM staff, who then enter the cause of death information into the electronic death registration system.

The Electronic Marriage Registration System (EMRS) will be modeled on the EDRS. A number of factors make the marriage system more complex than the death system. For one, the marriage license application collects information on six parties (bride, groom, parents of bride, and parents of groom) whereas death involves one individual. Another unique feature of Hawaii's marriage vital event system is that the officiant must be licensed by the state before he or she can conduct a wedding.

The marriage agent, who issues the marriage license, is like the funeral home director—they start the marriage record. However, the record is not complete until the officiant fills out and signs the paperwork. The key fields are date and place of ceremony, type of ceremony, and performer of ceremony (there is a drop-down menu with the names of registered officiants). The officiant then submits the record to DOH (this function will be electronic in the future). To further add to the complexity, some couples bring an officiant with them, who must get registered by the state prior to the ceremony. As a result, there are potentially thousands of officiants who can certify a marriage, whereas with death there are a more limited number of physicians in the state that can certify a death. This has implications for training.

Exhibit 7: Storage of Data at State Level

State	Storage of Marriage Data	Storage of Divorce Data	Marriage and Divorce Data in Same Database?	Marriage and/or Divorce Data Combined with Birth Data?	Marriage and/or Divorce Data Combined with Death Data?	Other Features
Colorado	Electronic database	Electronic database	No	No	No	Subset of marriage and divorce data inputted into web-based system for event verification
Delaware	Electronic database	Electronic database	Currently in separate statistical files; will be integrated into Electronic Vital Records System	The Electronic Vital Records System (EVRS) will combine all life events into one database: births, deaths, marriages, divorces. This is a web-based application.		University of Delaware compiles data. Marriage data sent electronically; divorce entered by hand into statistical files; this "middleman" will be eliminated when EVRS is operational
Hawaii	Electronic database	N/A: State does not collect divorce information	N/A: State does not collect divorce information	No	No	Developing web-based Electronic Marriage Registration System
New Hampshire	Web-based database	Web-based database	The New Hampshire Vital Records Information Network, a web-based application, to record and maintain records of all births, deaths, fetal deaths, marriages and divorces that occur in the state. NHVRIN is not entirely relational; it is not possible to link records from different types of events.			
Ohio	Web-based database	Electronic database	No	No	No	Ohio Industry for the Handicapped compiles marriage and divorce data into a text files
South Dakota	Web-based database	Web-based database	Electronic Vital Records and Screening System is a web-accessible data system that collects birth, death, marriage, and divorce records			
Utah	Electronic database	Electronic database	No	No	No	Data manually keyed in by state staff

III. DATA USE

The project team asked state and local staff how they use vital events data. The uses vary widely from helping local registrars locate copies of a marriage certificate for interested couples to matching data to other state databases (e.g., to detect insurance fraud). Some states explained that their systems performed a variety of functions. Primary data uses described by state and local staff include:

Issuing certified copies of certificates. In almost all states, the electronic databases are used to locate and produce certified copies of marriage and divorce certificates. As noted above, facilitating the production of certified copies of certificates and related documents was cited by some states as a key impetus for developing an electronic system. A primary benefit of an electronic system is the ability to locate a marriage or divorce event that occurred anywhere in the state and produce the necessary document. Thus, if a couple walked into the Arapahoe County (Colorado) Clerk's office and requested a certified abstract of a marriage or divorce certificate for an event that occurred in Pueblo County, the clerk could produce it. Without an electronic system, a couple would have to go to the county where the event occurred and was recorded.

Verifying marriages and divorces. States use databases to verify marriage and divorce information for other state and federal agencies. In South Dakota, for example, vital statistics staff receive requests for verification information from other state agencies (e.g., Social Services requests information about marriage and divorce to determine if a child was born in wedlock). Ohio staff noted that the Attorney General and FBI have requested marital status information for suspects.

Development of statistical reports. Almost all states use marriage and divorce records to generate statistics that are included in annual reports. Audiences for these reports include state legislators, state and local staff from agencies, researchers, and the general public. Generally the statistics presented include numbers for a given year as well as trend information. Often data for the state is compared to local-level statistics as well as national numbers. For example, ***Exhibit 8*** shows the marriage and divorce information the Delaware Health Statistics Center includes in its annual report. As the Exhibit shows, the state added a number of tables to its most recent annual report (2005) offering a more in depth view of events based on demographic characteristics.

Exhibit 8 Marriage and Divorce Information in Delaware Annual Statistical Report

Marriage-related Tables	Divorce-related Tables
• Number of marriages by place of ceremony (US, Delaware, counties) • Five-year average marriage rates per 1,000 population by place of ceremony (US, Delaware and counties) • Number and percent of marriages by month of ceremony (Delaware) • Number and percent of marriages by day of week ceremony performed (Delaware)	• Number of divorces/annulments by place of decree (Delaware and counties) • Five-year average divorce/annulment rates per 1,000 population (Delaware and counties) • Mean and median duration of marriage in years at time of divorce decree by race and number of marriage (Delaware) • Number and percent of divorces by race of husband and wife and number of children under 18 (Delaware)
New in 2005 • Number and percent of marriages by race of groom and bride (Delaware) • Number and percent of marriages by previous marital status and race of bride and groom (Delaware) • Number and percent of marriages by marriage order, type of ceremony and race of bride and groom (Delaware) • Median age of bride and groom by marriage order and race (Delaware) • Number and percent of marriages by marriage order, age and race of bride and groom (Delaware) • Number of marriages by marriage order and age of bride by marriage order and age of groom (Delaware)	*New in 2005* • Number of divorces/annulments by marriage order of husband and wife at time of divorce decree and race of husband and wife (Delaware) • Number of divorces/annulments by marriage order, duration of this marriage and race of husband and wife (Delaware)

Development of customized reports. Many states reported that they also produce customized reports for interested parties. For example, the Utah Department of Health reported many requests for marriage and divorce information from the Utah Commission on Marriage, a state commission housed in the Department of Workforce Services and funded by the Temporary Assistance for Needy Families block grant. Recently the Commission requested data to help select two counties with above average divorce rates for a pilot program that would reduce the marriage license fee by $20 for couples who participate in marriage education classes prior to getting married. State staff note that the Commission's use of marriage and divorce data has helped preserve funding for the collection and maintenance of information. Not only is it a highly public use of data, but the director of the Commission has been active in working to maintain funding for the collection and analysis of marriage and divorce information.

State staff in Colorado develop table shells that are populated annually in the event there are specific requests for reports from agencies, legislators, media, or others (e.g., businesses associated with wedding planning).

In New Hampshire, state and local staff associated with the collection of marriage and divorce information will soon have the ability to create customized reports. The on-line database allows ad-hoc analyses and the state is finalizing the web-based tool that will allow designated users to generate customized reports based on individual-level data. Currently, state staff produce reports for interested parties. Although individual-level data is restricted, aggregate data is available to a wider range of users. Interested parties can query vital events data by registering on a website and creating a user name and password.[5] Because aggregate reports generated from the data will be publicly available, the state instituted several safeguards to maintain privacy (e.g., any query with results based on fewer than five records and not equal to zero will not be available).

Research. Some states provide individual-level data to researchers, provided they sign the appropriate confidentiality agreements and submit research plans for approval. Most states noted that requests for marriage and divorce data are rare. The exception is Utah, where researchers from the Utah Population Database (UPDB) have access to the individual-level data in the marriage and divorce datasets and link this information with multiple data sources to study families with higher than normal incidents of cancer or other diseases and to explore patterns in the families' genetics.

Benefit determination. Another use is matching marriage and divorce data with other databases for benefit determination. Utah currently matches marriage and divorce data to medical claim data (see ***Box 6***). The Director of the Utah Insurance Fraud Division requests marriage and divorce information to identify cases in which a change in a dependent's marital status changes his or her eligibility for health insurance benefits.

Box 6: Utah Matching of Marriage and Divorce Records

Five years ago, at the request of the Director of Utah's Insurance Fraud Division, the Office of Vital Records and Statistics (OVRS), began matching marriage and divorce data to dependent claims cases that it was investigating. This match allows fraud investigators to identify cases in which a change in a dependent's marital status changes his or her eligibility for health insurance as a dependent. For example, children can often remain covered under their parents' insurance policies until they are in their early 20s. However, getting married renders the child ineligible. Getting divorced can have a similar effect on insurance eligibility. The fraud division has been able to use divorce records to identify individuals who continued to fraudulently receive coverage under their ex-spouses' plans after getting divorced.

By linking with marriage and divorce data, the fraud division has identified thousands of cases where ineligible dependents continued to receive health insurance. In most cases, the fraud cases have resulted in payment of restitution, but OVRS staff noted that individuals have been charged with felonies in especially egregious cases.

To link the data, the fraud division sends OVRS a dataset with dependents' names, SSNs, and other identifying information. OVRS then attempts to match these records to its marriage and divorce databases. OVRS submits a dataset back to the fraud division for those cases where there was a match.

[5] The website can be accessed at http://nhvrinweb.sos.nh.gov/Default.aspx

IV. CONCLUSION

The site visits revealed a range of electronic methods for collecting, transmitting and storing marriage and divorce information. On one end of the spectrum are states that use web-based systems to collect vital records at local offices. These records are immediately accessible by authorized local- and state-level users. Two states, South Dakota and New Hampshire, use such a system for collection and storage of marriage records. In both states, however, the collection of divorce information remains paper-based; data is entered into the system by state-level staff. The remaining states either use a largely paper-based system to collect information at the local level and transmit it to the state where it is entered into an electronic database or have a combination in which some local areas use electronic collection systems to collect marriage information while others use paper-based systems.

The findings from the site visits also suggest a number of implications for policy makers at the federal and state levels who are interested in accessing and using marriage and divorce data for a variety of purposes, as well as for implementers of electronic systems at the state and local levels.

A. Policy-related Findings

Development of electronic systems for marriage and divorce lags behind those for births and deaths. In recent years, states have made strides in re-engineering their systems for collecting birth and death data. These systems often are web-accessible that allow for online data entry capabilities at local offices. Only two study states use this type of system to collect and store marriage records, and none uses this type of system to manage divorce records.

The site visits indicate that marriage collection and transmission is more likely to be automated than divorce information. Even site visit states that do not have web-based systems for collecting and maintaining marriage records have automated features, often developed by counties or local offices. The system for collecting and transmitting divorce information, on the other hand, remains paper-based. State staff cited several reasons for not automating the divorce information collection process, primarily lack of support for it from courts and limited requests for divorce certificates.

The impetus for creating electronic systems is record storage and maintenance. Vital records are used for a number of purposes. Individuals use records, or certified copies, to define legal status and associated benefits (e.g., health insurance coverage for a spouse). Government agencies also use vital records to determine eligibility for programs and benefit amounts. Additionally, vital records can be used to calculate marriage and divorce rates by state.

Although marriage and divorce data systems have many potential uses, from the perspective of states and local offices, they are primarily used to verify events. Conversations with state and local staff indicated that the impetus for developing electronic systems was to facilitate the process for issuing copies of certificates to couples and verifying events for other governmental entities. State and local staff noted that electronic systems not only make it easier to locate records, but also save costs associated with staff time. Few states suggested that research or the ability to generate statistical reports was a key factor in the decision to automate.

B. Implementation-related Findings

Implementation of electronic systems can start at the state or local level. State and local staff described a variety of processes for implementing electronic marriage and divorce systems. Some used a "top down" approach in which state-level staff developed a system for collecting, reporting, and storing information and then rolled it out at the local level. This was especially true for states that use web-based systems to collect and store marriage information. More states had a "bottom up" approach to automating marriage data collection and reporting. In these states, local offices took the initiative to develop electronic data collection systems, primarily to ease staff workloads.

Staff noted that either process creates unique challenges. Staff involved in "top down" systems needed to secure the buy-in of local-level staff and their flexibility in learning and adapting to a new system. Those in "bottom up" states noted that locally driven changes result in a patchwork of systems across the state. State staff must work with the local areas to develop methods to report their data electronically in a format that is useful to the state. In Utah, for example, state-level staff worked closely with the five counties that are currently submitting marriage data electronically to ensure that their systems would generate the necessary data, while remaining flexible about the forms used and the format of the data. State staff also conducted outreach in local areas that are not currently submitting marriage records electronically with the goal of encouraging more local areas to shift towards a more automated system.

Development of electronic systems for marriage information outpace those for divorce. All states visited had electronic systems for storing marriage and divorce information. However, whereas states have developed electronic processes for collecting and reporting marriage information, these steps remain paper-based for divorce information. Staff indicated this is not because marriage information is easier to collect electronically. In fact, marriage records are similar in complexity to death records because multiple parties are involved in providing information to complete the record (the couple and officiant in the case of marriage; the physician and funeral home director for death). Rather, electronic systems are a natural outgrowth of the day to day functions of the city or county clerks who issue marriage licenses and certificates. Recording vital events is a large part of their mission and electronic systems can ease their workloads. The day to day work of courts is different; recording vital events is a small part of staff workloads.

Indeed, many state staff cited the resistance of courts to automating divorce records and the difficulty in building consensus among multiple local court districts as the primary reasons the divorce systems remain paper-based.

Implementation lessons. State and local staff were asked what advice they would give to their counterparts in other states or counties who are interested in enhancing their systems for collecting and storing marriage and divorce data or developing new systems entirely. Each had feedback on steps that could improve the design and implementation processes. Some pointed to the importance of building support for the endeavor, particularly among key stakeholders and data users. Others focused on more technical issues, such as developing the system incrementally.

*Buy-in From Key Stakeholders is Crucial***.** The one issue raised by staff in almost every state is the importance of understanding and getting feedback about the needs of the people who collect, transmit and/or use the data and articulating to them how the new system will benefit them. Often the key staff are local-level officials. In New Hampshire, the Division of Vital Records Administration has a strong relationship with the association of city and town clerks. The registrar attends the association's monthly Executive Board meetings, which is an opportunity for the system end users to provide feedback to the state. Colorado Department of Public Health and Environment staff noted that it is easier to secure buy-in from local staff if tools are developed to support the mission of the local offices. County staff were very supportive of the web-based tool that enables verification of marriages and divorces because it is intuitive and easy to use, and it facilitates the production of a certified document verifying a given event.

Other users are state-level staff who will store, analyze and disseminate information. According to staff in Delaware, prior to developing a new system it is crucial to determine the key goals of the system and ensure that the primary users buy into these goals. It is also important to have solid buy-in from technical staff. Together, users and in-house technical staff should agree on an approach--"come to the design table knowing your needs"--otherwise costly enhancements will likely be required in the future.

A number of discussants cited the use of advisory boards or other mechanisms to gather feedback from key constituents. The Colorado Department of Public Health and Environment convened a task force when it created a uniform marriage license application for reporting marriage data (counties previously developed their own forms) to ensure that all the parties would be involved in the conversation. The task force included state-level staff, representatives from the Clerks and Recorders Association, as well as some of the vendors that supply counties with electronic data collection and storage systems. By involving the clerks and recorders, DPHE was able to increase the likelihood that the entities responsible for collecting the data would be supportive of the new form. In addition, their involvement also represented an opportunity to discuss electronic data collection and submission with them.

*Key Role of Management***.** A number of respondents stated that senior management sponsorship and commitment are crucial to the success of an electronic system. In South Dakota, state staff credited the Registrar with the success of the electronic vital records and screening system implementation. The Registrar was successful in getting a number of different groups (e.g., local registrars, end-users, technical staff) to work together, in securing financial resources, in developing legislative changes, and achieving participant buy-in.

Don't Forget the Contractors/Vendors. Most states and local areas worked with contractors to build their electronic systems. Staff noted that it is important to involve contractors early in the process so they know what to expect and can adequately design the system to meet the needs of end users. For example, in Colorado state-level staff involved contractors in the task force meetings (see above), along with other key stakeholders. Involving state and local staff on the front end of development helped in developing a system that all users felt comfortable with.

States also identified times where earlier contractor input in the planning process would have been helpful. In Delaware, the hosting environment for the electronic vital registry system, which will combine birth, death, marriage and divorce information into one database, created numerous problems for the contractor, as well as the end users. The system sits on a state

server behind a firewall. As a result, off-site staff—including the system contractor, cannot directly access the production environment.

Develop Systems Incrementally. Some respondents advocated developing electronic data collection systems in distinct iterations, adding data or a specific function incrementally. An iterative process builds in time for system developers and other stakeholders—including end users—to review the work to date to determine if changes are necessary. A number of states also described rolling out a version of electronic data collection prior to development of an electronic system so that those collecting and reporting data could get used to a new way of doing business. In Delaware, for example, each vital record system developed some form of electronic data collection prior to the electronic vital registry system. Staff at hospitals, in Clerk of the Peace offices (for marriage licenses), and in family courts (for divorce certificates) recognized the utility of collecting information electronically and thus did not have to be convinced of the value of electronic data collection and submission.

Similarly, in Hawaii, Department of Health staff work closely with the marriage agents to describe the benefits of an electronic system in terms of staff time and effort. Prior to creating the on-line electronic marriage reporting tool, state staff conducted an initial step that involved teaching marriage agents how to transfer their marriage license data to the state agency via the internet instead of by disk. Once the local-level agents had experience with electronic data submission, the roll out of the web-based system was easier.

Allocate Resources for System Improvements. Finally, some states noted that development of an electronic system is the beginning, not the end of the process. In New Hampshire, the Registrar emphasized that in addition to capitol funding and federal grants, much of the development and maintenance of the state's electronic systems was facilitated by state's vital records improvement funds. Largely supported by collected fees, these funds are dedicated to supporting systems innovation and improvement.

In Colorado, the state agency currently uses a Microsoft Access database to store its electronic divorce records. Although the initial cost of this application was far less than a more sophisticated system, the current volume of data is taxing the storage capabilities of this system. States considering a shift to electronic storage of individual level data should consider their long term storage needs and the value of a high capacity database.

APPENDIX: SITE VIST REPORTS

COLORADO

I. BACKGROUND

A. Purpose of Site Visit

On August 28 and 29, 2007, staff from The Lewin Group conducted a site visit to Colorado as part of an effort to learn more about how marriage and divorce information is collected, processed, maintained, and used at the state and local level. The visit placed special emphasis on efforts to automate the collection, storage, and transmission of this information. It also addressed the state's recent reengineering of its electronic birth registration system (EBRS).

The state currently stores individual-level marriage and divorce information in electronic databases. Currently, 17 Colorado counties (out of 64 total) submit individual-level marriage information to the state electronically. This includes several of the largest counties in the Denver metropolitan area. Adams, Arapahoe and Jefferson are participating, but Denver County is not currently submitting data electronically. The remaining counties submit paper copies of marriage applications that the state then enters into an electronic database of individual-level marriage records. Local courts collect divorce data on paper forms. They send the forms to Office of the State Court Administrator, where the data are keyed into a delimited text file. The state receives this file monthly.

The visit involved meetings with the following agencies:

- ***Colorado Department of Public Health and Environment (DPHE)***. Within DPHE, the Center for Health and Environmental Information and Statistics is responsible for maintaining the state's vital statistics records. The Lewin team met with the State Registrar of Vital Statistics, the manager of the Data Management Section, and the Director of the Vital Statistics Unit.

- ***Colorado Department of Personnel and Administration (CDPA)***. Within CDPA, the Division of Central Services' Integrated Document Solutions (IDS) group is responsible for receiving all marriage records (both electronic and paper) from the counties. IDS staff key paper records into electronic files. IDS transmits complete electronic marriage records to DPHE on a monthly basis. IDS also maintains an on-line database that county and state staff can use to verify marriages and divorces.

- ***Arapahoe County Clerk***. County clerks in Colorado are responsible for issuing marriage licenses and transmitting the marriage information they collect to DPHE. The Lewin team met with staff in the clerk's office that are responsible for issuing marriage licenses and submitting the data to the state. The county has been submitting its marriage information electronically since 2005.

B. Currently Collected Statistics

As noted above, DPHE has different processes for receiving marriage and divorce information from local areas. Marriage information, whether submitted in paper form or electronically, is

processed by IDS. DPHE receives all divorce information from the Office of the State Court Administrator.

1. Collection of Marriage Statistics

Colorado has 64 counties. Each has a County Clerk where couples apply for a marriage license. Couples are required to submit information used to populate a marriage license application (in some counties this is a paper form, in others, couples tell the information to staff who then enter it into an electronic form). Approved by DPHE, this marriage license application form collects basic information about the bride and groom and the marriage.

In 2004, the Colorado statute changed and it required that all marriage data collection forms had to be approved by DPHE. In the past, each county had been using its own form to collect the data. Following the statute change, DPHE worked with the state's Clerk and Recorder Association to standardize the application.

In designing the new form, DPHE formed a task force that included representatives from the Association as well as representatives from some of the vendors that supplied counties with their data systems. This task force also served as a forum for the discussion of electronic data submission. DPHE learned that many counties were already storing their data electronically, so it made sense to offer them the option of entirely bypassing the paper-based submission process. The task force worked to develop a uniform data layout that counties could use should they choose to submit data electronically.

Exhibit 1 shows the information fields that the state requires counties to collect on the marriage license application.

Exhibit 1: Marriage Application Fields

Male Applicant	Female Applicant
Name (first, middle, last)	Name (first, middle, last)
Address (number/street, city, state, zip	Address (number/street, city, state, zip
Birth date	Birth date
Last name at birth if different (optional)	Last name at birth if different (optional)
Social Security Number[6]	Social Security Number
City and State of birth	City and State of birth
Father/Legal Guardian name (first, middle, last)	Father/Legal Guardian name (first, middle, last)
Father/Legal Guardian place of birth (city, state)	Father/Legal Guardian place of birth (city, state)
Mother/Legal Guardian name (first, middle, last)	Mother/Legal Guardian name (first, middle, last)
Mother/Legal Guardian place of birth (city, state)	Mother/Legal Guardian place of birth (city, state)
Present marital status (single, widowed, divorced, married)[7]	Present marital status (single, widowed, divorced, married)
If divorced—date, city and state, type of court	If divorced—date, city and state, type of court

[6] Although all counties collect social security numbers, they are not required to report this information to the state. DPHE felt that it did not need these data in order to fulfill its role in the process.

[7] Individuals can be married at the time of application under several scenarios. Most commonly, couples would select this option if they are applying for a marriage license as a part of their renewal of marriage vows. Also, couples that have been living together may already have a common law marriage.

Male Applicant	Female Applicant
Proof of age (valid driver's license, passport, birth certificate)	Proof of age (valid driver's license, passport, birth certificate)
Are the applicants related by blood (yes/no and how)?	
Married status (common law, renewing your vows, other)	
Name and signature of County Clerk (or deputy) receiving the application	
Date of license issuance	
County of issuance	
Type of ceremony (religious, civil, self)	
Date of ceremony	

The Lewin team observed the marriage license application process in Arapahoe County. When couples come in to the County Clerk's office to obtain a marriage license, a deputy clerk asks them a series of questions used to populate the electronic version of the marriage license application. Once the deputy clerk has filled out all of the necessary fields, he or she prints a copy of the form for the couple to review and sign. This information is then used to automatically populate a marriage license and certificate with the couples' names. The couple also receives a form with instructions on how to return the certificate to the clerk following the marriage. Once the couple gets married, these forms are sent back to the County Clerk where they are reviewed and the marriage is recorded in the computer system. If the couple has requested a certified copy of their marriage certificate, the County Clerk will send a copy after recording the event.

The county's computer system automatically uses the data from the marriage license applications to populate a text file for DPHE (the marriage is only officially recorded in the data file once county clerk staff have received the completed license). Each month, a deputy clerk pulls this text file from the database and sends it to IDS via FTP. The county uses a data layout provided by the state to ensure that the appropriate fields and formatting are used in transmitting the data.

2. Collection of Divorce Statistics

District Courts collect divorce-related statistics. There are 22 districts in the state. As seen below, there are certain data elements all courts are required to collect. However, the form used to collect this information is left to the discretion of individual courts. Some districts may use some sort of vital statistics sheet, while others may simply populate the necessary data fields based on information provided on the decree.

Each Clerk of the District Court is responsible for submitting the required data in paper form to the Office of the State Court Administrator each month. This office compiles the data for each court and creates an electronic file that is sent to the state on a monthly basis.

Exhibit 2 shows the data fields courts are required to collect.

Exhibit 2: Divorce-related Data Fields

Petitioner name (first, middle, last)
Respondent name (first, middle, last)
County
Filing year
Docket number
Decree type
Decree year
Decree month
Decree day

C. Storage of Data

DPHE uses a mainframe database to store marriage data; divorce data are stored on a Microsoft Access database. In addition, IDS also maintains a separate web-based system that contains limited fields from both the marriage and divorce databases (name, county, date of event for marriage; name, county, decree type, docket number and decree date for divorce). The website draws the data from a SQL-server database, with the front end component written in C-Sharp. This application is primarily used for verification of events.

As noted above, 17 of Colorado's counties currently submit marriage information electronically. IDS staff receive these data via FTP on a monthly basis. Working with IDS, DPHE devised a uniform file layout for marriage records that these 17 counties use when submitting their data. The remaining counties send paper files to IDS on a monthly basis to be coded and entered into the two marriage databases. This keying process includes several verification steps.

Divorce data are submitted to the State Court Administrators Office to be keyed. Once the paper records are keyed (conforming to a DPHE-prescribed data layout), the electronic file is transmitted to DPHE. This transfer occurs monthly.

D. Data Uses

DPHE's marriage and divorce databases are primarily used to verify marriages and divorces and to generate certified abstracts for couples. The web-based system designed and maintained by IDS serves as the primary tool for these verifications. All counties have access to all marriage and divorce records; this allows couples to go to any county to receive a verification (as opposed to only the county in which the event occurred). The information available is a subset of what is submitted from the county clerks and courts. For divorce this includes: name of petitioner and respondent, county, decree type, docket number, and decree date. For marriage, it includes: name of the parties, date of the event, county, and type of marriage.

Up until early 2007, the verification site was available to any interested party. However, the state felt that it may be providing too much individual-level data to the general public, and it scaled back access. Currently, the site can only be accessed by approved local or state

government staff. DPHE noted that the site was very popular, and the agency has received some complaints about the change.[8] Other government agencies can also request access to the site. For example, DPHE noted that, at various points, agencies such as the FBI, child support enforcement, and child protective services have requested and received access.

DPHE staff reported very few requests for marriage and divorce data. Occasionally a journalist will contact DPHE for information about marriage or divorce rates in a given county. Even less common, some junior high school or high school students will contact the agency for marriage or divorce rates as part of a term paper. While researchers can go through a formal process for accessing individual-level data (something similar to an IRB), this is extremely rare.

The state used to produce several tables on marriages and divorces as part of an annual statistical report, but the state has since put reports on most of its vital statistics on-line. DPHE does not currently include any data on marriages or divorces on its website. However, a DPHE statistician does have several table shells that she populates every year in the event that she receives any requests.[9] Typically, the statistician will receive fewer than five requests in a year.

II. ELECTRONIC VITAL RECORDS SYSTEM

As discussed in the previous section, DPHE maintains separate electronic databases with individual-level information for marriages and divorces. In addition, a joint web-based database contains a subset of these data for verification purposes.

DPHE has been maintaining electronic marriage records on an ATABASE mainframe system since 1996. The decision to store these data electronically was prompted by an offer from a private firm to key all paper records and store them in an electronic format. The firm was willing to do this free of charge in return for the rights to add the data to their larger databases. However, the DPHE soon found that the quality of the product was not up to its standards. In addition, there were increasing concerns about the privacy issues associated with providing individual-level data to a private company. As such, DPHE requested IDS to fulfill this function. With a large data entry and programming staff, IDS provides similar services to an array of state and local agencies throughout Colorado. Beginning in 2004, IDS also took responsibility for maintaining the web-based verification system for marriages (as well as divorces).

DPHE is planning to shift its marriage data from the mainframe to a SQL server. This is part of a larger effort to update and consolidate storage of vital statistics. It may also enable DPHE to maintain a single database for marriage events (as opposed to the current system in which it keeps the main database as well as the web-based verification system).

As with marriage, DPHE has been maintaining electronic divorce records since 1996. The process to shift to electronic storage began in 1993, and it took three years. Currently, the data

[8] In particular, the registrar noted that some of the strongest complaints came from genealogists, marketers, and private investigators.

[9] Examples of tables include: marriage and dissolution rates since 1950, marriages by age of bride and groom, marital status of brides and grooms, and marriage rates by county.

are kept in an Access database. However, the database is quickly running out of room. DPHE hopes to shift to a SQL server in the near future.

III. LESSONS LEARNED

Discussions with staff at DPHE, the Arapahoe County Clerk, and IDS revealed several lessons that would be valuable to other states and local areas that are considering electronic upgrades to their marriage and divorce statistics collection and storage systems.

Involve all parties early in planning process. DPHE received a mandate from the legislature to create a uniform marriage license application for reporting marriage data in 2004. Prior to that point each county had its own data collection instrument. In developing the new form, DPHE convened a task force early in the process to ensure that all the affected parties would be involved in the conversation. In addition to state staff, this included representatives from the Clerks and Recorders Association in the state as well as some of the vendors that supply counties with electronic data collection and storage systems. By involving the clerks and recorders, DPHE was able to increase the likelihood that the entities responsible for collecting the data would be supportive of the new form. In addition, their involvement also represented an opportunity to push them to submit their data electronically. By including the vendors, DPHE had a direct line to the entities that would likely be developing any new data systems (or reengineering existing systems to match the new file layout). This engagement helped increase the chance that counties submitted high quality data in the appropriate format.

Anticipate the long term storage needs associated with data collection. DPHE currently uses a Microsoft Access database to store its electronic divorces records. Although the initial cost of this application was far less than a more sophisticated system, the current volume of data is taxing the storage capabilities of this system. States considering a shift to electronic storage of individual level data should consider their long term storage needs and the value of a high capacity database.

Develop tools that support the mission of both the state and local areas. Both state and county staff were very supportive of the web-based tool that allows for verification of marriages and divorces. It is intuitive and easy to use. At the county level, it makes it much easier for clerks and courts to quickly produce a certified document verifying a given event. Just as important, the inquiring party can go to *any* county to get this information—whereas, prior to the availability of this tool, the inquiry could only be made in the county where the event took place. In addition, the availability of these data on a web-based application makes it much easier for DPHE to meet the requests of other public agencies seeking these data.

DELAWARE

I. BACKGROUND

A. Purpose of Site Visit

On July 3, 2007, staff from The Lewin Group met with staff in the Department of Health and Social Services Health Statistics Center (DHSC) within the Division of Public Health. The purpose of the site visit was to learn more about efforts to re-engineer the collection of marriage and divorce statistics. DPH currently stores and analyzes marriage and divorce information in electronic databases that facilitate analysis. Marriage information is sent to the state electronically, while divorce information is hand-entered by DHSC's contractor, the University of Delaware. DHSC is re-engineering the entire vital records system. The Electronic Vital Registry System (EVRS) will combine into one database births, deaths, marriages and divorces. DHSC expects the marriage and divorce modules to be completed by January 1, 2008.

During the site visit, the Lewin team met with:

- DHSC staff. DHSC is responsible for the data collection, validation, statistical analysis and maintenance of a comprehensive collection of health statistics. The Lewin team met with the Health Statistics Administrator, the EVRS project manager and the Information Resource Management liaison.
- Vital statistics staff who input some divorce certificate information into the database.
- Staff from the Kent County Clerk of Peace, which collects marriage information.

We also had a conference call with the off-site EVRS contractor, Genesys.

B. Currently Collected Statistics

DHSC currently collects a wealth of information from marriage and divorce certificates. As described further below, DHSC plans to incorporate marriage and divorce statistics into the EVRS by January 1, 2008. The current process for collecting marriage and divorce statistics relies heavily on clerks of the peace for marriage and the family courts for divorce. These entities will remain integrally involved in the future, but the flow of data will change to eliminate a contractor—the University of Delaware—that currently collects the statistics and enters them into a database for DHSC analysis. DHSC uses SPSS for analysis.

1. Collection of Marriage Statistics

Delaware has three counties (New Castle, Kent and Sussex). Each has a Clerk of the Peace where couples apply for a marriage license. About six years ago, the counties funded their own electronic systems for marriage license applications and certificates. According to the Kent County Clerk of the Peace staff, the Clerks found hand-writing and hand-entering the many marriage license fields to be time-consuming and cumbersome. The counties used the same

contractor (Genesys, later commissioned by the state to build EVRS), so the systems are similar, although not identical.

The Lewin team observed the marriage license application process in one local office. The Clerk of the Peace asks questions from the license application and inputs the answers directly into the windows-based program. The bride and groom signatures are captured via a signature pad. The Clerk then prints copies of the combined license and certificate.

Exhibit 1 shows the information fields on the combined form. The shaded areas are filled in by the Clerk; the others are filled in by the officiant following the ceremony and returned by the officiant to the Clerk of the Peace. When the Clerk receives the completed form, she hand-enters the information about the ceremony (date, time, officiant, witnesses).

The system is programmed so that each month it "rolls up" all of the completed certificates. The system creates an extract file of complete records for the month. The FTP path is specified in the database. The file is sent to the University of Delaware and placed on a site that is accessible by DHSC staff. Hard copies of certificates are forwarded to the Vital Statistics office where staff add a state file number so that the record can be identified in the Biggs Index, which is used for issuing certified copies of certificates. DHSC staff access the University of Delaware site, download the county files, and place them into SPSS.

Exhibit 1: Certificate of Marriage Fields

Groom	Bride
Name (first, middle, last)	Name (first, middle, last)
Residence (street, city, state, zip code, county)	Residence (street, city, state, zip code, county)
Date of birth	Date of birth
Age	Age
Birthplace (state or foreign country)	Birthplace (state or foreign country)
Name of father (first, middle, last)	Name of father (first, middle, last)
Birthplace of father (state or foreign country)	Birthplace of father (state or foreign country)
Name of mother (first, middle, last)	Name of mother (first, middle, last)
Birthplace of mother (state or foreign country)	Birthplace of mother (state or foreign country)
Number of marriage	Number of marriage
Date of first marriage (month, day, year)	Date of first marriage (month, day, year)
Last marriage ended by death, divorce or annulment (specify)	Last marriage ended by death, divorce or annulment (specify)
Last marriage ended on (month, day, year)	Last marriage ended on (month, day, year)
Race	Race
Highest grade completed	Highest grade completed
Date of marriage	
Place of marriage (city, town or location)	
Title of clergy or other official	
Witnesses	

2. Collection of Divorce Statistics

Family Courts collect divorce-related statistics. There is one Family Court in each of the three counties. A clerk hands the divorce certificate to the petitioner. The certificate is a carbon copy.

After the petitioner fills out the certificate, the certifying official adds the type of decree, the date recorded, the county of the decree, the title of the court and the number of children under 18 whose physical custody was awarded to the husband, wife or other, and then signs the decree. Each month, the three courts send batched divorce certificates to Vital Statistics staff. After adding a state file number (for location in the Biggs Index), Vital Statistics staff sends DHSC the statistical copy.[10] DHSC sends the copies to the University of Delaware to enter and compile into a statistical file. At the end of the calendar year, the statistical file is posted to the DHSC site.

The Division of Public Health developed the certificate. DHSC staff note that because the Family Court does not use most of the fields on the certificate, there has been little incentive to ensure that all fields in the certificate are completed. As a result, DHSC often receives certificates missing key information. In particular, much of the "statistical information" section of the form (i.e., information pertaining to previous marriages, race and education) is missing. DHSC raised this issue with the clerks and they suggested revising the form so that it was easier to fill out, including check boxes where appropriate and integrating the statistical information questions into the body of the certificate rather than putting them at the end below the signature boxes where they may be mistaken for information to be filled out by the court or other state officials.

Exhibit 2 shows the fields on the old certificate and the revised fields in the order they appear on the certificate. New fields are highlighted. DHSC staff report that the completeness of data has improved but is still not of the same quality as the marriage data (which, as noted above, is filled out by Clerk of the Peace staff and not the couples).

Exhibit 2: Certificate of Divorce or Annulment Fields

Previous Certificate	Revised Certificate
Husband and Wife • Name (first, middle, last) • Residence (street or number, city) • County • State • Zip code • Birthplace (state or foreign country) • Date of birth Wife only • Maiden name Marriage • Place couple last resided in same household • Number of children under 18 in this household • Petitioner	Petitioner (check husband, wife, both, other) Name of petitioner's attorney Attorney's address (number, street, town, state, zip) Husband and Wife • Name (first, middle, last) • SSN • Residence (number and street) • City • County • State • Zip code • Birthplace (state or foreign country) • Date of birth • Race (check which race you consider yourself to be) • Hispanic origin (check box with selection)

[10] The second, carbon page of the certificate is longer than the first. The bottom portion of the second page includes statistical information questions on previous marriages, race, and education.

Previous Certificate	Revised Certificate
Attorney • Name of petitioner's attorney • Address (street and number or rural route number, city or town, state, zip code) Decree • Certification that marriage of the named persons was dissolved (month, day, year) • Type of decree (divorce or annulment) • Date recorded (month, day, year) • Number of children under 18 whose physical custody was awarded to (husband, wife, joint, other) • Contested? • County of decree • Title of court • Signature of certifying official • Title of certifying official • Date signed Statistical information (for husband and wife) • Number of this marriage • If previously married o Date of first marriage (month/day/year) o Last marriage ended by death, divorce, or annulment (specify) o Last marriage ended on (month/day/year) • Race/American Indian/Black, White, Etc. (specify) • Education (specify highest grade) o Elementary/secondary (0-12) o College (1-4 or 5+)	• Education (check one from a list) • Number of this marriage (1st, 2nd, etc., specify below) • If previously married, date of your last previous marriage (month, day, year) • Preceding marriage ended by (check one—death, divorce, annulment) • Date preceding marriage ended (month, day, year) Wife only • Last name prior to first marriage Date of this marriage (month, day, year) Place where this marriage took place (city, town or location) County State or foreign country Date couple last resided in same household Number of children under 18 in this household Number of children whose physical custody was awarded to (husband, wife, both, other, no children) Contested?

C. Data Uses

DHSC is required to compile and publish an annual statistical report each year. DHSC staff determine which data to include in the report. The marriage and divorce section of the Delaware Vital Statistics Annual Report and corresponding Summary Report is small but growing due to increased interest. ***Exhibit 3*** shows the tables included in the annual report.

As the Exhibit shows, DHSC added a number of tables in its most recent annual report. Previous versions focused on numbers and rates of marriage and divorce for the state and individual counties (the comparison to national data was limited to marriage statistics). Additional tables include information about most common months and days of the week couples married. The divorce-related tables included more detailed information—including the duration of the marriage, the number of the marriage, the race of the husband and wife, and the number of children under 18 in the divorcing household.

The newly added marriage tables include demographic information for brides and grooms (race, age) and information on previous marital status and number of previous marriages. Newly added divorce information includes the marriage order.

Exhibit 3: Tables in Annual Statistical Report

Marriage-related Tables	Divorce-related Tables
• Number of marriages by place of ceremony (US, Delaware, counties) • Five-year average marriage rates per 1,000 population by place of ceremony (US, Delaware and counties) • Number and percent of marriages by month of ceremony (Delaware) • Number and percent of marriages by day of week ceremony performed (Delaware) *New in 2005* • Number and percent of marriages by race of groom and bride (Delaware) • Number and percent of marriages by previous marital status and race of bride and groom (Delaware) • Number and percent of marriages by marriage order, type of ceremony and race of bride and groom (Delaware) • Median age of bride and groom by marriage order and race (Delaware) • Number and percent of marriages by marriage order, age and race of bride and groom (Delaware) • Number of marriages by marriage order and age of bride by marriage order and age of groom (Delaware)	• Number of divorces/annulments by place of decree (Delaware and counties) • Five-year average divorce/annulment rates per 1,000 population (Delaware and counties) • Mean and median duration of marriage in years at time of divorce decree by race and number of marriage (Delaware) • Number and percent of divorces by race of husband and wife and number of children under 18 (Delaware) *New in 2005* • Number of divorces/annulments by marriage order of husband and wife at time of divorce decree and race of husband and wife (Delaware) • Number of divorces/annulments by marriage order, duration of this marriage and race of husband and wife (Delaware)

Because the audience for the annual report (e.g., legislators, state officials) often has limited time to review and interpret the tables, DHSC includes a highlights section in each report. ***Box 1*** shows the marriage and divorce highlights from the most recent publicly available report (2004).

Box 1

Key Indicators: 2000-2004	Delaware	U.S.	Recent Trend in Delaware
Marriages			
Number of marriages per 1,000 population	6.4	8.0	Decreasing
Divorces			
Number of divorces per 1,000 population	3.8	3.7	Decreasing

Key Facts

There were 5,088 marriages and 3,108 divorces in Delaware in 2004

The most popular month to get married in Delaware in 2004 was October

The median duration of marriage for couples divorced in 2004 was 8.4 years

There were a total of 2,725 children under 18 years of age among couples who divorced in 2004

DHSC has traditionally received few requests for marriage and divorce data. Requests in recent years have increased, although they still lag far behind requests for birth and death data. Requestors include legislators, policy makers, counties (e.g., how many divorces occurred in the county last year) and religious organizations. DHSC staff was unsure why the requests have increased.[11]

DHSC will produce customized reports on request that provide aggregate-level data. Although researchers and other interested parties can request record-level data for their own analysis, thus far there have been no requests for marriage or divorce datasets. To obtain record-level data, a requestor would need to fill out an application that lists the project or study title; the primary project/study objectives and the health/medical/other problem addressed by the proposed project; and how the data files will be used, stored, protected, and destroyed following the project completion. In reviewing the application, DHSC considers whether the requestor is public health staff or someone else, and whether the information requested is protected (includes personal identifiers such as name, Social Security Number, full address), limited (does not contain personal identifiers but does contain individual specific data such as city, zip code, Census tract, or dates), or public use. DHSC staff look at the application with an eye towards whether the user actually needs all of the data requested to complete the stated study goals and how the data will be protected.

To date, DHSC has not linked marriage or divorce data to other datasets. Staff noted that marital status is available through other records (primarily birth and death).

[11] Lewin staff noted that the federal government has emphasized healthy marriage initiatives in recent years and that some funded projects are operating in Delaware. DHSC staff thought this was a reasonable explanation.

II. ELECTRONIC VITAL RECORDS SYSTEM

A. Overview

The Vital Statistics Electronic Vital Records System (EVRS) will combine all significant life events for Delaware residents into one database: births, deaths, marriages and divorces. When fully operational, EVRS will provide client verification and vital information to law enforcement and homeland security. It will provide basic person information to other Department of Health and Social Services (the public health umbrella department) system users (e.g., child support enforcement) for verification of client information. Additionally, data exports will be provided to the Social Security Administration, the U.S. Department of Health and Human Services (National Center for Health Statistics), family courts, and immigration. Data can be exported to SPSS for analysis. In addition, data can be imported. For example, SSA will send back Social Security Numbers for children.

DHSC contracted with Genesys to develop EVRS. Genesys used an existing system from South Carolina as a model. EVRS is not currently web-based. The EVRS database will be housed on the state's server and overseen by the state's Information Resources Management unit. Citrix provides remote access for non-DHSC staff.

Currently, only birth data is inputted directly by hospital staff into EVRS via the Citrix interface. This module was the easiest to implement because staff in hospital birthing units already use electronic birth coders for birth certificates. DHSC plans to add the marriage and divorce modules by January 1, 2008. DHSC is also exploring how to add death data from hospitals and funeral homes (the Citrix interface has been problematic). Currently paper copies of death certificates are entered by Vital Statistics staff.

B. Marriage and Divorce Modules

As noted above, marriage information is collected electronically in each of the three counties and transmitted to the University of Delaware for compilation. Divorce information collection, however, is still paper-based and university staff hand-enter information into a statistical file.

Integrating marriage information into EVRS will be straightforward and involve little change in the current process. Counties currently FTP flat files monthly to the University of Delaware. The "middle man" will be eliminated. The counties will FTP the files directly to the EVRS site. DHSC will not have to populate any of the fields. The marriage and divorce module will be tested during the middle of August.

For divorce, some information will be imported directly into EVRS. The family courts are in the process of developing a system to collect limited divorce certificate information electronically. The courts will create a monthly extract file that can be imported directly into the EVRS divorce module. Because only limited certificate fields will be imported, many fields will still need to be hand-entered. DHSC will take over this task from the University of Delaware. Paper copies of the certificates will be sent monthly to DHSC.

III. LESSONS LEARNED

DHSC staff were asked what advice they would give other states that are considering electronic upgrades to their marriage and divorce statistics collection and storage systems. They reflected on the strengths of their system and what, in hindsight, they would change. They also described key factors to consider that may or may not be within the control of the system planners.

Know information needs upfront. DHSC and Genesys staff noted that prior to developing a new system, it is crucial to determine the key goals of the system and ensure that the primary users buy into these goals. DHSC staff noted that in working with a contractor it is important to "come to the design table knowing your needs," otherwise costly enhancements will likely be required in the future. It is also important to have solid buy-in from technical staff.

Electronic data systems can develop incrementally. With the exception of the death data, each of the vital record systems developed some form of electronic data collection. This both helped and complicated the process for developing a unified vital records system. Staff at hospitals, in Clerk of the Peace offices, and in family courts recognized the utility of collecting information electronically and thus did not have to be convinced of the value of electronic data collection and submission. However, while the hospitals use a Genesys-developed tool for collecting birth certificate information, the Clerks of Peace and family courts used their own contractors to develop systems. This meant that the EVRS contractor needed to design ways to integrate the free-standing systems into the central database.

DHSC staff noted that it can be helpful to start by populating the "back end." That is, if data collectors (e.g., courts) cannot input data directly into EVRS using Citrix, or for a variety of reasons will not, Vital Statistics staff can populate the EVRS modules using information from the certificate. Once data is in the system, staff can begin to access and analyze it.

Consider the hosting environment. EVRS sits on a state server behind a firewall. DHSC has found this to be problematic for a number of reasons. First, although DHSC staff can access EVRS easily, off-site staff—those who collect and report birth, death, marriage, and divorce information—must use the Citrix interface. The interface has proven unreliable and is one of the key reasons death data is not inputted directly into EVRS by hospital staff and funeral home directors. Second, Genesys, the contractor, cannot directly access the production environment. This makes it difficult to trouble-shoot and make quick adjustments. If a problem occurs, DHSC must send a copy of the database to Genesys. Genesys must then work through Information Resources Management to make changes. Moving EVRS to a third-party host (i.e., a web-based system) would address these issues.

HAWAII

I. BACKGROUND

A. Purpose of Visit

On September 5, 2007, staff from The Lewin Group met with staff in the Hawaii Department of Health (DOH) Office of Health Status Monitoring. The purpose of the site visit was to learn more about efforts to re-engineer the collection of marriage statistics.

Marriage is the most common vital event in the state. In 2006, there were 28,674 marriages performed. By way of comparison, there were about 19,000 births and 9,600 deaths. As a result, the state is gearing up to make collection of marriage information more efficient. The majority of couples marrying in Hawaii are not state residents.

The conversation with state-level officials focused on the collection of marriage information and upcoming changes to this information collection system. While the state is currently testing an electronic data collection system for marriage, it does not collect any divorce information. (Courts send divorce information directly to the National Center for Health Statistics.) Courts are the custodians of the divorce decrees while DOH is custodian of the certificates. The Department received so few requests for certified copies of divorce certificates that it simply was not cost-effective to collect divorce-related information. Moreover, DOH proposed developing an electronic method for collecting divorce information from the courts; the courts testified against this legislation.

This site visit report describes the current process for collecting marriage statistics in Hawaii. It describes the state-of-the-art electronic death registration system, and concludes with a discussion of the efforts to create an electronic marriage registration system.

B. Marriage Data Collection Process

Couples wishing to marry in Hawaii must appear together in person before a marriage license agent to apply for a license (no proxies are allowed). The marriage license application collects a range of information about the bride and groom (see ***Exhibit 1***). Couples can apply for a marriage license at the Health Department Building in Honolulu. Applicants in rural or suburban Oahu, or those on the neighbor islands, can get a license from a marriage agent—either a Governor's liaison office staff person or a contracted marriage license agent. The license is good for 30 days.

If a couple applies for a license at the Department of Health, information from the certificate is entered directly by staff into an Oracle database. Marriage agents in rural Oahu and on the neighbor islands enter information from the license into stand-alone computers; at this time they do not have access to an on-line database. Instead, the agents have a template on their computer that captures the required information about the couple. The agents then export a file via the internet to the Office of Health Status Monitoring (OHSM), a unit of the Department of Health, each month.

Exhibit 1: Marriage License Application Fields

Information for Bride and Groom
First Name, Middle Name, Last Name
Date of Birth
Usual residence: street address, city, county, state or foreign country
Place of birth
Father: full name (first, middle, last), state or foreign country of birth, living (Y/N/Refused/Unknown)
Mother: full name (first, middle, last), state or foreign country of birth, living (Y/N/Refused/Unknown)
Zip Code
Home phone number, Office phone number
Other
Blood relationship of groom to bride
On what island do you plan to be married?
When do you plan to be married?
Name of marriage performer (commissioned by the State of Hawaii)
Confidential Information (Supplementary Data) for Bride and Groom
Number of this marriage (first, second, etc.—specify)
If previously married, last marriage ended by (death, divorce, dissolution, annulment), date ended (month/year), place ended (county and state or country)
Race*
Occupation*
Education* (specify highest grade completed—elementary or secondary, college)

*Items indicated with an asterisk are optional. Couples are instructed to not leave them blank but to enter "refused" or "unknown"

DOH publishes marriage information in its Vital Statistics Annual Report. The 2005 Vital Statistics Report, the most recent on the Health Statistics website, contained 19 tables related to marriage, including:

- Marriages by county and month of occurrence (44 percent in Honolulu, most popular month was May)
- Marriages by county of residence of bride and groom (including mainland and foreign)
- Marriages by age of groom and bride
- Marriages by marital status and age (for groom and bride)
- Marriages by ethnicity and age (for groom and bride)
- Marriages by education of groom and bride

In addition, annual information on the number of marriage events is available on the Health Statistics website.

C. DOH Systems Re-engineering

DOH is re-engineering (or reinventing) a number of systems. According to a report to the state legislature, the purpose of reinvention is to computerize the registration and issuance of vital records (births, deaths and marriages) and to make maximum use of available technology. DOH re-engineered the state's death registration system. The state is currently re-engineering the marriage information collection system. Staff note that the marriage system is complicated to re-engineer, and involves many issues similar to the death registration system.

1. Re-engineered Death Registration System

In 2003, DOH received $500,000 from the Social Security Administration to develop and implement an Electronic Death Registration System (EDRS) so that SSA receives timely death data. There is also a financial incentive for DOH. DOH receives from SSA $2.54 for each fact-of-death reported within 5 days after the death, $1.27 if within 30 days and $0.71 if more than 30 days.[12]

The project went into effect on January 1, 2006. SSA has access to real-time information. There are two key forms, each filled out by a different official. Mortuaries/funeral homes fill out the *personal information* form and see that the registration of the death is reported to OHSM. All 23 mortuaries/funeral homes use the on-line form. Physicians are responsible for completing the *medical information form* (thus certifying the cause of death). This form is also available online, although some physicians continue to use a paper-based system. For non-participating physicians, the mortuaries complete the personal information electronically and "drop it to paper" for the physician to complete the medical information by hand and fax or E-fax the information to OHSM staff, who then enter the cause of death information into the electronic death registration system.

Over time, the proportion of physicians using the EDRS has increased. The state began rolling out the EDRS with physicians who certified 10 or more deaths per year. (These physicians certify most of the deaths in the state.)

The state involved the key stakeholders early in the reengineering process. Medical examiners and physicians were first involved five years prior to the roll out of EDRS because DOH staff believed the number one factor of success is participant buy-in. State staff had many conversations with medical examiners and physicians. From these discussions stemmed an effort to accommodate pre-existing software used by physicians so that they would not have to double enter information. The state began programming the system in 2005. It was on-line January 1, 2006.

A number of reports are available in the Oracle database. Staff use SAS to tabulate information. A number of "canned" reports are available on the web; staff can also customize reports (they can search on any of the fields in the record). Information is also in a data warehouse that contains birth and death records.

[12] State of Hawaii Department of Health, Office of Health Status Monitoring (2006). *Report to the Twenty-Fourth Legislature, State of Hawaii, 2007.* Available on-line: http://www.hawaii.gov/health/about/legrpts2007/act160sec36.2-rpt.pdf.

Recently, the Hawaii EDRS received national recognition. The system received the Digital Government Achievement Award at the 12th Annual Best of the Web Ceremony, held in Las Vegas.[13]

2. Marriage System Re-engineering Effort

The reinvention project is continuing with the development of the Electronic Marriage Registration System (EMRS), which will be based on the electronic death registration model. DOH staff have been studying the process required for the registration and issuance of marriage certificates. As noted above, marriage is the most common vital event in the state, so moving to an electronic system will save staff time and make the process more efficient (including searching for and issuing marriage certificates). An initial step was instructing the marriage agents on neighbor islands how to transfer the marriage license information via the internet, rather than floppy disk.

A number of factors make the marriage system more complex than the death system. For one, the marriage license application collects information on six parties (bride, groom, parents of bride, and parents of groom) whereas death involves one individual. Another unique feature of Hawaii's marriage vital event system is that the officiant must be licensed by the state before he or she can conduct a wedding.

The marriage agent is like the funeral home director—they start the marriage record. However, the record is not complete until the officiant fills out and signs the paperwork. The key fields are date and place of ceremony, type of ceremony, and performer of ceremony (there is a drop-down menu with the names of registered officiants). The officiant then submits the record to DOH (this function will be electronic in the future). To further add to the complexity, some couples bring an officiant with them, who must get registered by the state prior to the ceremony. As a result, there are potentially thousands of officiants who can certify a marriage, whereas with death there are a more limited number of physicians in the state that can certify a death. This has implications for training.

In-house staff converted the DOS-based marriage system into a web-based system. It is currently being piloted in one jurisdiction.

As noted above, marriage licenses are a big source of revenue for DOH. There is a "marriage menu" in which staff at DOH (and eventually across the state) can search for an existing license. There is also a transmittal file so that marriage license agents can enter data directly online.

DOH would like to put the marriage application on-line so that applicants could fill out the information before presenting at DOH or a marriage agent. The DOH staff or marriage agent would then serve as a witness that the couple is in fact who they say they are and in Hawaii. There would need to be an electronic signature capability. It is the same concept as an airline "e-ticket"—the passenger is not officially checked in for the flight until he or she shows documentation proving he/she is in fact the passenger.

[13] http://www.hawaii.gov/health/about/pr/2007/07-74.pdf

II. LESSONS LEARNED

DOH staff were asked what advice they would give other states that are considering electronic upgrades to their marriage statistics collection and storage systems. They reflected on the strengths of their system and described key factors to consider.

Buy-in from key stakeholders is crucial. DOH "went overboard" in working with physicians and morticians to get buy-in, according to the Vital Registrar. The number one fact of success is participant buy-in. DOH began having discussions with key stakeholders a full year prior to rolling out the EDRS. In doing so, staff also became aware of potential pitfalls and could plan for them. In developing the EMRS, staff spent time ensuring that marriage agents on the neighbor islands understand the proposed system and its benefits.

Be strategic with training and education. DOH approached the mortuaries first because there are fewer morticians who can certify deaths than there are physicians. Once the morticians were educated about the new system and trained, DOH "triaged" the physicians. Staff approached those that certify 10 or more deaths per year first.

Work incrementally. DOH studied the process required for marriage certificate registration and issuing of marriage certificates. Prior to creating the EMRS, staff conducted an initial step that prepared the marriage agents for an eventual on-line system. Staff taught marriage agents how to transfer their marriage license data to DOH via the internet instead of by disk.

Culture of change is important. A state-of-the-art electronic registration system will not produce intended results if the target audience resists the change. DOH, as indicated above, no longer collects divorce information because it was costly in terms of staff time and effort and produced little benefit in the way of revenue. DOH proposed to the court an electronic means of collecting information on the divorce certificate and offered to develop the system. The court resisted the change, and testified against the relevant legislation. The Vital Registrar noted that a cultural change is often more important than programming in the creation of an electronic registration system.

NEW HAMPSHIRE

I. BACKGROUND

A. Purpose of Site Visit

On August 23, 2007, staff from The Lewin Group conducted a site visit to New Hampshire as part of an effort to learn more about how marriage information is collected, processed, maintained, and used at the state and local level. The visit placed special emphasis on efforts to automate the collection, storage, and transmission of this information. It also addressed the state's implementation of electronic birth and death registration system (EBRS and EDRS) and lessons that could be applied to marriage and divorce system reengineering efforts.

The state currently stores and maintains marriage and divorce information in a web-based electronic database. Currently, all but five of New Hampshire's 234 cities and towns collect marriage information using the state's web-based application, the New Hampshire Vital Records Information Network (NHVRIN).[14] Although the state has the infrastructure in place for local courts to report divorce information electronically, state staff still enter all divorce into NHVRIN by hand.

Lewin staff met with the State Registrar, who is the Director of the Division of Vital Records Administration (DVRA) in the Department of State. In addition, Lewin met with staff from the state's Office of Information Technology (OIT), the agency responsible for developing and maintaining the state's vital statistics databases and application software.

B. Currently Collected Statistics

DVRA receives an array of marriage and divorce information from local areas. City and town Clerks are responsible for issuing marriage licenses and collecting marriage information. The Administrative Office of the Courts (AOC) is responsible for divorces in New Hampshire. Couples file for divorce in one of six Family Courts or 11 Superior Courts in the state.

As noted above, the state receives virtually all marriage information electronically through NHVRIN. Although divorce information is still submitted in paper form, DVRA staff hand-key all information from the divorce certificate and enter it into NHVRIN.

1. Collection of Marriage Statistics

New Hampshire has 234 cities and towns. Each city or town has an elected or appointed Clerk whose office is responsible for issuing marriage licenses. Couples are required to fill out a Certificate of Intention of Marriage. The Clerk uses this information to populate a web form that then generates the marriage license.

[14] The five towns that are not using this system are all extremely small. The only reason they are not using the web-based application is because of difficulties in securing a broadband internet connection.

C. Storage of Data

ODH/VS preserves paper abstracts of marriages and divorces dated as far back as 1949, that contain limited information extracted from the original marriage licenses or divorce decrees. During the 1970's, marriage data from the abstracts began to be stored electronically as well. ODH/VS maintains the abstracts of marriages and divorces that occurred in Ohio after January 1, 1954 in a web-accessible electronic database.

Currently ODH/VS receives batches of marriage abstracts and divorce abstracts from each county on a monthly basis from County Probate Courts and Common Pleas Courts respectively. Staff at ODH/VS review the abstracts and assign each with a file number. These abstracts are then mailed to the Ohio Industry for the Handicapped (OIH), which is contracted by ODH/VS to key in information from the abstracts into a text file. Text files are sent to ODH/VS monthly, where the data is cleaned, checked, and eventually compiled into an annual statistical file using SAS.

Marriage data abstracts in Franklin County are now available through a web-based system. The data, hand entered from the paper forms, is stored on a client-server application that populates a web-based database. Prior to September 2006, the county stored the data on a mainframe package. This shift towards more easily accessible electronic storage is intended to improve customer service and the speed with which the county can respond to requests for copies of marriage documents. In the next year, the county also hopes to begin publishing scanned images.

D. Data Uses

The collection of marriage and divorce data at the state level is used to provide an index for the State of Ohio and to generate statistics for the National Center for Health Statistics (NCHS). ODH/VS also uses vital statistics as indicators of population health, which may be useful in planning and evaluating community programs and developing policy. ODH/VS's webpage provides some statistical information regarding vital events in Ohio. Annual statistical tables reporting select marriage and divorce information for Ohio and each county are available for 1990 through 2005. ***Exhibit 3*** shows marriage and divorce statistics for Ohio and its two largest counties from the most recent report available on the website (2005).

Exhibit 3: Marriage and Divorce Statistics for Ohio and Select Counties (2005)

Key Indicators	Ohio	Cuyahoga County
Marriages		
Total number, n	74,542	7,473
Number per 1,000 population, %	6.5	5.6
First marriage of bride, n (%)	49,278 (66.1)	5,412 (72.4)
First marriage of groom, n (%)	49,135 (65.9)	5,290 (70.8)
Divorces		
Total number, n	40, 419	4,379
Number per 1,000 population, %	3.5	3.3
Divorces with minor children, n (%)	19, 324 (47.8)	2,048 (46.8)
Minor children affected, n	33,548	3,533
Divorces per 100 marriages, %	54.2	58.6

ODH/VS staff also provided the Lewin team with the following statistical reports: Marriages by Age of Bride and Age of Groom (2000-2003); and Marriages, Divorces, and Annulments: Number and Rate per 1,000 Population (1950-2003). These reports indicate that the rate of marriages per 1,000 has decreased in the past years, from 9.0 in 1990 to 6.7 in 2003. The rate of divorces/annulments/dissolutions per 1,000 appears to also have decreased, from 4.9 in 1990 to 3.7 in 2003.

With regard to requests for vital statistics information, ODH/VS can produce customized reports that provide aggregate-level data and can also provide record-level information. Data from vital statistics records can be released to any governmental agency or political subdivision which requests the data for official purposes. Vital statistics data may also be provided for research purposes, as long as the organization requesting the data signs an agreement to adhere to certain release conditions.

Staff in ODH indicated that the most popular requests for marriage or divorce abstract information come from news reporters who want the data as background information for forthcoming articles. ODH/VS also receives requests for marriage and divorce information from the attorney general and FBI regarding a suspect's marital status. In addition, LexisNexis, a company that offers a large collection of public records, news, and local and business information to its customers, has also purchased marriage data from ODH/VS. Members of the general public can request a search for marriage or divorce abstracts that occurred in Ohio from January 1954 to present from ODH/VS by providing the name of the bride and groom, date of marriage/divorce, city of marriage, divorce, years to be searched, and the requester's contact information. For copies of marriage licenses or divorce decrees, an individual must contact the County Probate Court or Clerk of Court in which the event occurred.

II. ELECTRONIC VITAL RECORDS SYSTEM

A. Electronic Birth and Death Registration Systems

ODH/VS has made substantial efforts reengineer their birth, death, and fetal death registration in recent years, all three of which are now integrated into a Citrix, web-based and statewide system developed by QS Technologies. Electronic marriage registration systems are used by many County Probate Courts; however, these systems are not integrated with the state database. Collection of divorce information primarily remains a paper-based system.

Since January 1st, 2006 all birthing facilities (i.e., hospitals, free standing birthing centers) in Ohio have been using the Integrated Perinatal Health Information System (IPHIS) to enter birth information electronically, create birth certificates, and capture prenatal information. Prior to the implementation of IPHIS, ODH/VS had been using a system that allowed hospitals to enter data to create birth certificates; however this system did not contain fields required by the recent changes to the birth certificate required by NCHS nor was it able to capture prenatal information.

On January 1st, 2007, ODH/VS implemented the Electronic Death Registration System (EDRS) to meet the NCHS and the National Intelligence Reform and Terrorism Reduction Act of 2004 guidelines. In addition, implementation of the EDRS was intended to help make the completion of death certificates more accurate and efficient, as well as incorporate features to streamline business processes (e.g., the system allows for the printing of the burial permit at the funeral directors office instead of having to drive to a local or sub-registrars office). In addition, the EDRS can verify whether the Social Security number of the decedent matches that of the Social Security database. Currently, all of the funeral directors and local registrars in Ohio are using the EDRS. Plans are underway to align physicians to enter cause of death in EDRS as well.

B. Marriage and Divorce Modules

At the state-level, marriage and divorce information are transferred from paper abstracts into electronic files. Divorce information is collected primarily through paper forms at the local-level. However, staff at ODH/VS estimates that most counties use their own electronic system to collect marriage information. ODH/VS indicated that larger counties use in-house developed systems, while many smaller counties contracted the Ohio-based government software specialist, Henschen & Associates, Inc., to develop their electronic systems. Many counties use their electronic systems to automatically complete the marriage abstracts, which are printed and then mailed to ODH/VS. Abstracts received by ODH/VS are sent to OIH to be transferred into text files, which are then sent back to ODH/VS for statistical analysis.

ODH/VS staff members reported that vendors such as QS Technologies have suggested that Ohio incorporate marriage and divorce modules into the State electronic vital records system. However, the staff stated that efforts to implement an electronic marriage registration system have been modest, due to lack of incentives. For the past 15 years, the Ohio Supreme Court has been discussing the development of an electronic system to record pleadings, court orders and other legal documents, which would include those related to divorce cases. However,

differences among judges regarding details of the proposed system have hampered the development of the electronic system.

III. LESSONS LEARNED

ODH/VS staff provided the following input regarding key facilitations and barriers contributing to the implementation of electronic vital statistics systems:

Incorporate potential users during planning stages. ODH/VS cited a key factor to implementing the EDRS was the consistent input from the Board of Embalmers and Funeral Directors. One piece of advice that was cited to be especially useful was for ODH/VS to require all funeral directors and coroners to use the electronic system, as opposed to making use of the system optional. The board indicated that if use of the system was optional, significantly fewer directors would have made the efforts to use the electronic system. In addition, by incorporating the Board from the beginning stages, buy-in from this group was achieved more readily.

Provide ample training, technical support, and other resources to users. During the implementation of the electronic birth registration and death registration system, ODH/VS noted that the extensive training given to local registrars and system users (e.g., funeral directors, coroners, nurses, hospital clerks) was important in increasing comfort and competence with the electronic systems. As a further incentive, ODH/VS offered continuing education credits for participating in training sessions. The provision of a comprehensive web support site also contributed to the successful implementation of these electronic systems.

Lack of compromise and a collaborative vision hinder implementation. Although there is initiative and funding for the development of an electronic court record system, creation of such a system has been stalled for the past 15 years. ODH/VS stated that the major barrier to development is the lack of consensus and compromise by judges on various details regarding the design of the electronic system. The current methods that the Ohio courts are using for storing, coding, cataloguing the records are different, and it has proven to be a very difficult to develop a unified system that accounts for these differences.

SOUTH DAKOTA

I. BACKGROUND

A. Purpose of Site Visit

On September 17th and 18th, 2007, staff from The Lewin Group conducted a site visit to South Dakota to learn more about efforts to re-engineer the collection of marriage and divorce statistics. The visit placed special emphasis on efforts to automate the collection, storage, and transmission of marriage and divorce information.

South Dakota currently uses the Electronic Vital Records and Screening System (EVRSS) to file and analyze marriage and divorce data. The EVRSS is a comprehensive web-accessible data system developed to allow the electronic collection of birth, death, marriage, and divorce records, as well as infant metabolic and hearing screening data and immunization records. Currently, all 64 county Registers of Deeds in South Dakota use the EVRSS to issue marriage licenses and collect marriage information. Most county Clerks of Courts, who are responsible for collecting divorce information, complete and submit paper abstracts to the South Dakota Department of Health (SDDOH), which are then input into the EVRSS at the state-level. However, Clerks of Courts of a few counties have recently started recording divorce information electronically and emailing electronic files containing divorce information to SDDOH.

The visit involved meetings with staff from the following:

- ***The Office of Data, Statistics, and Vital Records (ODSVR).*** Within the SDDOH, the ODSVR is responsible for collecting, filing, and storing all vital records, issuing certified copies of vital records, and using vital records data to develop leading health indicators.

- ***Hughes County Register of Deeds.*** The Hughes County Register of Deeds issues marriage licenses for couples and records marriages into the EVRSS.

- ***Hughes County Clerk of Courts.*** The Hughes County Clerk of Courts reports information on each dissolution of marriage or divorce filed in its office on forms that are mailed to ODSVR.

B. Currently Collected Statistics

The Vital Records Office receives an array of marriage and divorce information from the 64 counties in South Dakota. Marriage information is collected electronically by county Register of Deeds using the marriage module of the EVRSS. In contrast, divorce information is primarily collected on paper abstracts at Clerk of Courts offices. Divorce abstracts are mailed to SDDOH on a monthly basis and are input into the EVRSS by SDDOH staff members. Instead of mailing paper abstracts, several counties email electronic files containing divorce information to SDDOH, which are then imported directly into the EVRSS.

1. Collection of Marriage Statistics

All 64 county Registers of Deeds in South Dakota currently use the EVRSS to file and issue marriage records. In October 2002, the electronic marriage registration module and business function module of the EVRSS was implemented at the State Vital Records Office. Using a staggered schedule, these modules were implemented in all 64 counties by January 2003.

Staff at the Hughes County Register of Deeds described the marriage license application process to the Lewin team. To apply for a marriage license, a couple comes to the Register of Deeds office and provides basic demographic information. The Register of Deeds types the couples' information into the EVRSS. The bride and groom must also provide identification (e.g., driver's license, birth certificate) and a payment of $40 to receive the marriage license. In addition, signatures of the bride and groom are gathered through an electronic signature pad and stored in the system. Once the information is entered in the system and the application process is complete, the Register of Deeds prints out the license for the couple.

Exhibit 1 shows the information collected when a couple applies for a marriage license.

Exhibit 1: Marriage License Application Fields

Groom	Bride
Name (first, middle, last)	Name (first, middle, last)
Residence (street, city/town, state, zip code, county)	Residence (street, city/town, state, zip code, county)
Address located within city limits?	Address located within city limits?
Date of birth	Date of birth
Age	Age
Birth state/country	Birth state/country
Of Hispanic origin? Cuban, Central/South American, Puerto Rican, Mexican, unknown or other Hispanic descent (specify)	Of Hispanic origin? Cuban, Central/South American, Puerto Rican, Mexican, unknown or other Hispanic descent (specify)
Race	Race
Number of previous marriages	Number of previous marriages
Marital status: windowed, divorced, never married, annulment (specify)	Marital status: windowed, divorced, never married, annulment (specify)
Social security number	Social security number
Expected location of ceremony	Expected location of ceremony
Expected city of ceremony	Expected city of ceremony
Expected county of ceremony	Expected county of ceremony

Following the ceremony, the officiant who solemnized the marriage (e.g., pastor) must sign the license and return the license to the Register of Deeds office within 10 days. The Register of Deeds assigns a state file number to the marriage and enters additional information about the wedding ceremony into EVRSS.

2. Collection of Divorce Statistics

The Clerk of Courts in each county collects divorce-related statistics. The plaintiff or attorney files necessary documents, including the Final Judgment and Decree of Divorce, to the Clerk of Courts Office. In addition, the plaintiff or attorney must submit a Civil Case Filing Statement

and a filing fee to the Clerk of Courts Office before documents will be accepted for filing. The Judgment and Decree of Divorce must be signed by the Judge.

The Clerk of Courts records information on each divorce filed in its office on "Record of Divorce or Annulment" forms prescribed and furnished by SDDOH. All records filed during the previous month are required to be mailed or delivered to ODSVR by the seventh working day of the following month. Clerks of Court also submit report forms with each monthly batch of records, which provide the following information to ODSVR: name of the county, provider code, date, number of records, order requests for supplies, and the signature of the Clerk of Courts. ODSVR staff indicated that many counties mail paper abstracts to SDDOH; however, several counties electronically record divorce information and email files containing divorce information to SDDOH for direct import into the EVRSS.

Exhibit 2 shows the fields on the Record of Divorce or Annulment form.

Exhibit 2: Record of Divorce or Annulment Fields

Husband	Wife
Name (first, middle, last)	Name (first, middle, last)
Residence (state, county, city/town/location)	Residence (state, county, city/town/location)
Age (if known)	Age (if known)
Race (if known)	Race (if known)
County file number	
State file number	
Place of marriage (state)	
Date of marriage (month, day, year)	
Plaintiff: husband or wife (specify)	
Children under 18 in this family	
Attorney for plaintiff	
Address (street, city/town, state, zip code)	
Date of decree (month, day, year)	
Type of decree	
Decree granted to	
Custody of minor children granted to: husband or wife (specify number)	
Legal grounds for decree	
County where decree is filed	
Date of recording (month, day, year)	

For paper abstracts mailed to the state, SDDOH staff hand-enters information from each abstract into the EVRSS, where the data is then checked and cleaned. If information is incorrect or missing, SDDOH calls the responsible Clerk of Courts office to correct the record.

C. Data Uses

ODSVR maintains vital records for the state, issues certified copies of such records, and reports data to the National Center for Health Statistics (NCHS). ODSVR also conducts statistical analysis of vital event data to determine trends in health status, for planning health care services, and for making decision about public health programs.

ODSVR publishes an annual vital statistics report titled "South Dakota Vital Statistics: State and County Comparison of Leading Health Indicators." The report includes a section devoted to marriage and divorce statistics. The 2005 report provided several tables and graphs of marriage and divorce data, including:

- **Table: South Dakota Vital Statistics by County, 2005,** which lists the number and rate of vital events, including marriage and divorce, by the 64 counties.
- **Table: Marriage and Marriage Rates by Occurrence, South Dakota and United States, 1976-2005,** which lists the number and rate of marriages for the US and South Dakota by year.
- **Table: Number and Rate of Divorces and Annulments by Occurrence, South Dakota and United States, 1976-2005,** which lists the number and rate of divorces for the US and South Dakota by year.
- **Figure**: **Marriages Occurring in South Dakota and United States, 1976-2005,** which provides a line graph comparing the number of marriages occurring in South Dakota and the US over time.
- **Figure: Brides and Grooms Age Group for Marriages Occurring in South Dakota, 2005**, which presents the distribution of brides and grooms by age group in a bar graph.
- **Figure: Divorces Occurring in South Dakota and United States, 1976-2005,** which provides a line graph comparing the number of divorces occurring in South Dakota and the US over time

ODSVR receives a number of requests for record-level marriage and divorce information from individuals seeking certified copies. As another example of a record-level request, Social Services has asked for marriage and divorce information to determine whether an infant was born in wedlock. Local media outlets also frequently request marriage information and recently lobbied for a publicly accessible marriage index that provides a list of all marriages in South Dakota. Requests for aggregate data are less frequent, although ODSVR has received requests from legislators and researchers. For these requests, ODSVR provides aggregate data with identifying information stripped from the records.

II. ELECTRONIC VITAL RECORDS SYSTEM

A. Overview

The EVRSS is a comprehensive web-accessible data system developed to allow the electronic collection of birth, death, marriage, and divorce records, as well as infant metabolic and hearing screening data and immunization records. The EVRSS was developed by QS Technologies, Inc. and is deployed in South Dakota using the metaframe application, Citrix. Users connect to the system via a web browser with a user ID and password, which allows them access to only the fields they need for their specific job duties. Information entered into the system can be immediately accessed by EVRSS participants.

ODSVR incorporated the EVRSS using a module approach, in which the first module, the birth record system, was implemented in February 2002. Subsequently, the marriage and death modules were employed at the state and local levels. A business module was also integrated into the EVRSS, which streamlined business functions of vital statistics offices, including issuance of certified records, accounting, and preservation of records. Currently, the divorce module is being used at the state level; however, at the local level, divorce information collection remains primarily a paper-based system.

The EVRSS improved the timeliness and quality of vital event records through a number of ways. Vital records entered into the EVRSS at the local level are immediately available to ODSVR. Further, the EVRSS has a built in electronic match system, which can be used to match two vital events and store information from each record on the other. The EVRSS also made the process for changing a vital record more efficient: with the previous paper-based system, changes to a vital record were made on the original paper record and shared with local registrars so that the local copy of the record could be changed as well. In addition, EVRSS integrated all vital records into one system, which further improved timeliness. Prior to EVRSS, ODSVR used multiple computer systems to analyze vital statistics. For example, hospitals entered birth records using an Electronic Birth Certificate System. Records were sent via modem to ODSVR, reviewed, numbered, and exported to a mainframe system to allow local registrars to issue the records. To record marriages and divorces, ODSVR used a computer system written in Fox Pro to input and file records, which then had to be loaded to the mainframe system. Supporting these multiple systems was expensive and time consuming.

B. Marriage and Divorce Modules

As indicated above, marriage information is collected electronically in each of the 64 counties. In December 2001, ODSVR began implementation of the marriage module by providing each of the 64 local registrar offices a computer and a printer. Local registrars were trained from January to March of 2002, which included instructions on filing marriage licenses and using the accounting and document tracking systems. ODSVR piloted the marriage module at 5 local registrar offices in May 2002. In October 2002, the marriage module was implemented at the State Vital Records Office and the other local registrar offices using a staggered schedule. All 64 counties were using the marriage module to electronically collect marriage records by January 2003.

Divorce information collection, however, is still primarily paper-based at the collection level. Many counties still mail paper abstracts to the state, which are then entered into the EVRSS by ODSVR staff by hand. Recently, several counties began emailing electronic files containing divorce information to the state, which can then be imported into the EVRSS. When asked if there were plans to implement the divorce module of the EVRSS at the county level, SDDOH staff indicated that because divorces occur infrequently as compared to other vital events, there would not be much payoff to transition to a state-wide electronic collection system.

III. LESSONS LEARNED

SDDOH staff was asked what advice they would give other states that are considering electronic upgrades to their marriage and divorce statistics collection and storage systems. Staff

offered a piece of advice regarding the technical design of the system: incorporate as many automatic data checks (e.g., alerts if data is missing/implausible, drop-down menus) as possible at the primary collection level. This will result in better quality data and prevent the time it would take to correct data.

SDDOH also cited the following factors as being critical for the successful implementation of the EVRSS:

Strong senior management. Strong leadership and management were essential for ensuring the success of EVRSS implementation. The State Registrar was tremendously successful in getting a number of different groups (e.g., local registrars, end-users, technical staff) to work together, securing financial resources, developing legislative changes, and achieving participant buy-in. Moreover, the implementation of EVRSS required financial resources, legislative changes, and frequent travel by vital statistics staff. Senior leadership was instrumental in each of these areas.

Commitment from staff. The EVRSS is a culmination of years of hard work and teamwork by SDDOH staff. During the reengineering process, staff were responsible for new duties related to EVRSS implementation in addition to their daily office responsibilities. Further, as business processes were being incorporated into the EVRSS, business procurements were in a constant state of change. These factors increased staff workload and required flexibility from staff members.

Participant buy-in. A system such as EVRSS cannot work if the staff who are responsible for entering data—including Registers of Deeds—are not supportive. It is important to encourage their input and buy-in.

Communicate. Staff note that communication can "make or break" any IT project. The SDDOH communicated regularly with key stakeholders—weekly or daily as needed. Staff found that when communication went well, the project ran smoothly. Conversely, staff hit "bumps" when they didn't take time to communicate.

UTAH

I. BACKGROUND

A. Purpose of Site Visit

On July 25 and 26, 2007, staff from The Lewin Group conducted a site visit to Utah as part of an effort to learn more about how marriage information is collected, processed, maintained, and used at the state and local level. The visit placed special emphasis on efforts to automate the collection, storage, and transmission of this information. It also addressed the state's recent implementation of an electronic death registration system (EDRS) and lessons that could be applied to marriage and divorce system reengineering efforts.

The state currently stores and analyzes marriage and divorce information in electronic databases that facilitate analysis. Currently, five Utah counties (out of 29 total) submit individual-level marriage information to the state electronically. The remaining counties submit paper copies of marriage applications that the state then enters into an electronic database of individual level marriage records. No local courts submit data electronically; all information is entered into the state's divorce database by hand.

The visit involved meetings with the following agencies:

- ***Utah Department of Health (DOH)***. Within DOH's Center for Health Data, the Office of Vital Records and Statistics (OVRS) is responsible for maintaining the state's marriage, divorce, birth, and death records. The Lewin team met with the Director of the Center for Health Data, the OVRS Director, and several off the OVRS staff members responsible for receiving, coding, and analyzing vital statistics data.

- ***Salt Lake and Utah County Clerks***. County Clerks are responsible for issuing marriage licenses, and transmitting the marriage information they collect to OVRS. The Lewin team met with Deputy Clerks in both counties as well as staff responsible for processing marriage licenses and submitting the data to OVRS. In Utah County, which maintains marriage information electronically, Lewin staff also spoke with staff responsible for the design and maintenance of the electronic database used to collect, store and transmit marriage information.

- ***Utah Commission on Marriage (UCOM)***. Originally the Governor's Commission on Marriage, UCOM is now housed within the Utah Department of Workforce Services' (DWS) Office of Work and Family Life. UCOM aims to increase the availability and use of premarital education in the hope of strengthening marriages and reducing the state's divorce rate (as well as the associated costs to the state). The Lewin team met with the UCOM Coordinator and the Director of the Office of Work and Family Life. UCOM is guided by an Advisory Board including representatives from other state agencies, universities, private practitioners, and the faith community. UCOM is one of the primary users of OVRS's marriage data. Lewin staff met with the Vice Chair of the board, a professor in the Family Life Department of Brigham Young University.

B. Currently Collected Statistics

OVRS receives an array of marriage and divorce information from local areas. County Clerks are responsible for issuing marriage licenses and collecting marriage information. Couples file for divorce in district courts; staff then transmit copies of the certificate of divorce to OVRS.

As noted above, the state receives the vast majority of marriage and divorce information through paper forms. Only five counties provide the state with electronic marriage information, and none of the district courts transmit divorce information to the state electronically. However, the state maintains electronic databases with individual-level information on all marriages and divorces that occur in the state. All information that OVRS receives in paper form is manually keyed into the state's databases (separate ones for marriage and divorce).

1. Collection of Marriage Statistics

Utah has 29 counties. Each has a County Clerk where couples apply for a marriage license. Couples are required to fill out a marriage license application. Created by DOH, this form collects basic information about the bride and groom and the marriage. Counties are allowed to use variations of this form as long as they collect all of the relevant information.

Exhibit 1 shows the information fields that the state requires counties to collect on the marriage application. The shaded areas are filled in by the couple; the others are filled in by the officiant following the ceremony; the application is returned by the officiant to the County Clerk. In addition, the County staff issuing the license must record the date of the application, their title (i.e., County Clerk or Deputy Clerk), the date the completed application was received from the officiant, and the name of the Clerk returning the application to DOH.

Exhibit 1: Marriage Application Fields

Groom	Bride
Name (first, middle, last)	Name (first, middle, last)
Usual Residence (street, city, state, zip code, county)	Residence (street, city, state, zip code, county)
Birthplace (state or foreign country)	Birthplace (state or foreign country)
Date of birth	Date of birth
Age	Age
Social Security Number	Social Security Number
Race	Race
Number of this marriage	Number of this marriage
Last marriage ended by (specify death, divorce or annulment)	Last marriage ended by (specify death, divorce or annulment)
Date last marriage ended	Date last marriage ended
Years of education (i.e., elementary/secondary 0-12, college 13-16, or 17+)	Years of education (i.e., elementary/secondary 0-12, college 13-16, or 17+)
Name of father	Name of father
Birthplace of father (state or foreign country)	Birthplace of father (state or foreign country)
Name of mother	Name of mother
Birthplace of mother (state or foreign country)	Birthplace of mother (state or foreign country)
Telephone number	Telephone number
Planned date of marriage	

Groom	Bride
Planned place of marriage (city, county)	
Planned name of person to perform marriage	
Date of marriage	
Place of marriage (city, county)	
Name of officiant	
Title of officiant	
Type of marriage (religious or civil)	

The Lewin team observed the marriage license application process in two counties.

- ***Salt Lake County***. In Salt Lake County (which includes Salt Lake City), the entire application process is paper-based. A couple comes into the County Clerk's office and fills out the marriage application. County staff review the application and use a typewriter to fill out a marriage license. The license is valid for 30 days from the date of issuance. After completing the ceremony, the officiant returns a signed copy of the license and the completed application (as noted above, the officiant is responsible for filling out a number of fields on the application upon completion of the ceremony) to the Clerk. Each month, the Clerk sends copies of all marriage applications that were processed that month to OVRS. County staff noted that they process over 10,000 marriage applications annually. The current process is time-consuming, and staff expressed an interest in moving to an electronic system that would ease this burden.

- ***Utah County***. Utah County has been generating marriage licenses and storing marriage information electronically since 1985 in an attempt to facilitate better control and management of the data. Initially, the data were kept on a mainframe database programmed in COBOL. In 1995, county IT staff re-wrote the program using PowerBuilder with an Oracle database management system. The county uses an application similar to the state form (i.e., all of the same data fields). Couples can either fill out a copy of this form at the Clerk's office, or they can print out a PDF version from the Clerk's website and bring it with them to the Clerk's office. County Clerk staff then enter the information on the application into the county's computer system. This information is entered into a database and also automatically generates a printable marriage license. After receiving the signed copy of the license and the completed marriage application from the officiant, county staff enter the information about the ceremony (e.g., date of marriage, place of marriage, name of officiant) into the database. These completed electronic records are then transmitted to OVRS monthly in an emailed file. County staff had limited interaction with the state during the development of these systems. While the state was not involved in the design of the system, county staff consulted with the state about the layout for the transmitted data.

2. Collection of Divorce Statistics

District Courts collect divorce-related statistics. There are five districts in the state. Petitioners or their attorneys are responsible for filing a "Certificate of Divorce, Dissolution of Marriage or Annulment" form. If a petitioner is not represented by an attorney, he or she can use an online tool maintained by the Utah State Courts to prepare the appropriate documents.

Each Clerk of the District Court is responsible for sending copies of the "Certificate of Divorce, Dissolution of Marriage or Annulment" form to OVRS. While the courts typically send batches monthly, the exact times between mailings can vary.

Exhibit 2 shows the fields on the certificate. The shaded areas are filled in by the petitioner or his or her attorney; the others are filled in by the clerk of the court.

Exhibit 2: Certificate of Divorce, Dissolution of Marriage or Annulment

Husband	Wife
Name (first, middle, last)	Name (first, middle, last)
Residence (city, town, or location; county; state)	Residence (city, town, or location; county; state)
Birthplace (state or foreign country)	Birthplace (state or foreign country)
Date of birth	Date of birth
Number of this marriage	Number of this marriage
Last marriage ended by (specify death, divorce, dissolution, or annulment)	Last marriage ended by (specify death, divorce, dissolution, or annulment)
Date last marriage ended	Date last marriage ended
Race	Race
Years of education (i.e., elementary/secondary 0-12, college 13-16, or 17+)	Years of education (i.e., elementary/secondary 0-12, college 13-16, or 17+)
Place of this marriage (city, town, or location; county; state)	
Date of this marriage	
Date couple last resided in same household	
Number of children under 18 in this household as of date couple last resided in same household	
Petitioner (husband, wife, both, other)	
Name of petitioner's attorney	
Address of petitioner's attorney	
Date marriage was dissolved	
Type of decree (divorce, dissolution, annulment)	
Date recorded	
Number of children under 18 whose physical custody was awarded to (husband, wife, joint, other)	
County of decree	
Title of court	
Signature of certifying official	
Title of certifying official	
Date signed by certifying official	

C. Storage of Data

Utah uses Pervasive databases housed on DOH servers to store marriage and divorce data. DOH has a team of programmers on staff who are responsible for designing and maintaining the programs used to enter data.

OVRS has staff that enter the information from all paper marriage applications and divorce certificates into electronic databases. This multi-step process was designed to ensure maximum data reliability.

- Each document is assigned a state file number that serves as a unique identifier.

- Each document is coded; number codes that correspond to the answers in each data field are entered onto the document.
- A second staff person checks each document to ensure no codes were assigned incorrectly.
- After verification of the coding, a staff person enters the data from the document into the appropriate state database.
- A different staff person then reenters this same information to ensure no data entry errors were made.

Information received electronically is merged into the existing marriage database. Each county that submits data electronically has a slightly different method. The counties developed their databases independent of the state. Most often, the counties will email the state a file with records for each of the marriages that occurred in the previous month. These files are most often delimited text files or Microsoft Excel files.

Because the counties use different database programs than the state, there have been occasional glitches in the transfer of information. Most commonly, the data elements are laid out differently, or the codebooks do not align. State staff regularly run programs to ensure data reliability. For example, the OVRS database will create an alert if an applicant responded that this is his or her first marriage but has provided a date in the field asking the date that the previous marriage ended.

In cases where consistent errors occur, OVRS programmers will work with the county to fix the necessary code. In addition, OVRS staff will call counties with any questions they have about individual records.

D. Data Uses

OVRS' marriage and divorce databases are primarily used to generate certified abstracts for couples. Unlike County Clerks and District Courts, OVRS does not maintain paper copies of the divorce certificate or marriage application. However, the certified abstracts can serve the same purpose when a couple requires legal documentation of the event. Aside from this function, OVRS staff noted that there are relatively few requests for marriage and divorce data beyond some regular consumers of the data (see below). As discussed below, OVRS makes marriage and divorce data easily available to interested parties through a combination of its annual statistics reports as well as its responsiveness to more specific data requests.

1. Annual Statistical Reports

The easiest and most common way to access OVRS' marriage and divorce data is through its annual statistical report. Each year OVRS compiles a report on marriages and divorces. ***Exhibit***

3 shows the tables included in the annual report.[16] The report is produced in paper form, and it is also available on-line as a PDF.[17]

Exhibit 3: Tables in Annual Statistical Report

Marriage-related Tables	Divorce-related Tables
• Estimated midyear population and marriage numbers and rates: Utah and United States, 1940, 1950, 1960, 1965, and 1970-2005 • Marriage rates: Utah and United States, 1960 and 1970-2005 • Marriage numbers and rates by health district, county of occurrence: Utah, 2000 and 2003-2005 • First marriages and remarriages for bride and groom, numbers and rates: Utah, 1970-2005 • Median age of bride and groom in first and second marriages: Utah, 1965 and 1970-2005 • Marriages by type of officiant, percent: Utah, 1970-2005 • Education level of brides for first marriages and remarriages, percent: Utah, 1990-2005 • Marriages by health district, county of residence and age of bride: Utah, 2005 • Marriages where bride is less than 20 years of age by health district and county of residence, number and percent: Utah, 2004 and 2005 • Marriages of persons under 20: Utah and United States, 1970, 1975-2005 • Marriages by county of occurrence and month: Utah, 2005 • Marriages by county of residence of groom and county of residence of bride: Utah, 2005 • Marriages by age of groom and bride: Utah, 2005 • Marriages, first of both bride and groom by age: Utah, 2005 • Marriages occurring in Utah by state of residence of bride and groom: Utah, 2005 • Marriages by age and previous marital status of bride and groom: Utah, 2005 • Marriages by age and race of bride and groom: Utah, 2005 • Marriages by race of bride and groom: Utah, 2005 • Marriages by previous marital status, education and race of bride: Utah, 2005 • Marriages by previous marital status, education and race of groom: Utah 2005	• Estimated midyear population and divorce numbers and rates: Utah and United States, 1940, 1950, 1960, 1965, and 1970-2005 • Divorce rates: Utah and United States, 1960 and 1970-2005 • Divorces of persons married at less than 20 years of age: Utah and United States, 1970, 1975-2005 • Divorces by health district, county of occurrence, number and rate: Utah, 2004 and 2005 • Divorces by median age of husband and wife and order of marriage: Utah and United States, 1970-2005 • Children involved in dissolutions of marriage, average number per divorce, and rate per 1,000 children: Utah and United States, 1960 and 1970-2005. • Dissolutions of marriage by county of occurrence and month: Utah, 2005 • Dissolutions of marriage occurring in Utah by state in which marriage was performed and type of decree: Utah, 2005 • Dissolutions of marriage by duration of marriage in years and type of decree: Utah, 2005 • Dissolutions of marriage by age of husband and wife: Utah, 2005 • Dissolutions of marriage by number of dependent children under 18 years of age and type of decree: Utah, 2005

[16] The most recently annual report contains data through 2005.

[17] Annual reports can be accessed through the following link http://health.utah.gov/vitalrecords/Stats/statistics.htm

Marriage-related Tables	Divorce-related Tables
• Marriages by previous marital status of bride and groom and type of officiant: Utah, 2005 • Marriages by resident status of couples marrying and type of officiant: Utah, 2005 • Marriages where bride is under 20 years of age by resident status of couples marrying and type of officiant: Utah, 2005	

Although OVRS is timely in its release of the report each year, it can take as long as six months after a marriage or divorce for the event to be recorded in the OVRS database. In large part, this is due to the fact that, unlike birth and death, local areas cannot directly enter marriage and divorce information into the database. The fact that the vast majority of records are submitted in paper form and must be hand coded makes it difficult to enter all information as it arrives. Furthermore, OVRS staff note that interest in marriage and divorce statistics is limited compared to birth and death. Marriage and divorce statistics are given a lower priority, and there is less emphasis on ensuring that data are available immediately after an event occurs.

2. Utah Commission on Marriage

Launched in 1998 as the Governor's Commission on Marriage, the Utah Commission on Marriage (UCOM) seeks to strengthen marriages in Utah. UCOM has advocated for increased marriage education, and has attempted to raise awareness about the importance of healthy marriages. Although initially housed in the Governor's office, UCOM is now part of the Office of Work and Family Life in the Department of Workforce Services (DWS). DWS uses part of its Temporary Assistance for Needy Families block grant to fund UCOM.

UCOM staff noted that the availability of detailed data on couples getting married and divorced in Utah has been an important tool in their efforts. Staff use the annual report and request from OVRS additional tables and statistical breakdowns.

UCOM recently produced a white paper for the state legislature advocating a $20 reduction in the license application fee for those couples that take marriage education classes before getting married. Although the proposal was rejected by the legislature, UCOM has subsequently advocated for a pilot program in two counties. In preparing its proposal, UCOM requested data from OVRS to identify the counties with above average divorce rates and lower-income populations. Based on the data, UCOM identified two counties—Weber and Washington.

One of the UCOM Advisory Board members also noted the Board's interest in using OVRS data to examine the predictors of divorce in the state. Ideally, this would involve linking OVRS' marriage and divorce data. UCOM though that, by linking the data, it would be easier to identify those couples who not only got married and divorced in Utah but also resided in the state at the time of the events. Unfortunately, the fact that the divorce certificate does not include SSNs has made this linkage more difficult.

UCOM's use of marriage and divorce data has helped preserve funding for OVRS's collection and maintenance of this information. Over the past few years, the state legislature has

proposed cutting OVRS funding for these efforts. The Director for the Center for Health Data cited letters of support from UCOM as a contributing factor in the preservation of this funding.

3. Utah Population Database

OVRS will give researchers access to the individual-level data in the marriage and divorce datasets if presented with a valid research plan approved by DOH's Institutional Review Board. The Utah Population Database (UPDB) is an example of one such research effort. The UPDB is run by the University of Utah's Huntsman Cancer Institute. The UPDB links multiple data sources to study families with higher than normal incidents of cancer or other diseases and to explore patterns in the families' genetics. The UPDB combines detailed family medical histories with an array of demographic and vital statistics data.

UPDB researchers have linked OVRS' marriage and divorce data with families in the database. OVRS staff send large database files to UPDB that the researchers can use to help establish family pedigree.

4. Insurance Fraud

Five years ago, at the request of the Director of Utah's Insurance Fraud Division, OVRS began matching marriage and divorce data to dependent claims cases that it was investigating. This match allows fraud investigators to identify cases in which a change in a dependent's marital status changes their eligibility for health insurance as a dependent. For example, children can often remain covered under one of their parents' insurance policies until they are in their early 20s. However, getting married renders the child ineligible. Getting divorced can have a similar effect on insurance eligibility. The fraud division has been able to use divorce records to identify individuals who continued to fraudulently receive coverage under their ex-spouses' plans after getting divorced.

By linking with marriage and divorce data, the fraud division has identified thousands of cases where ineligible dependents continued to receive health insurance. In most cases, the fraud cases have resulted in payment of restitution, but OVRS staff noted that individuals have been charged with felonies in especially egregious cases.

To link the data, the fraud division sends OVRS a dataset with dependents' names, SSNs, and other identifying information. OVRS then attempts to match these records to its marriage and divorce databases. OVRS submits a dataset back to the fraud division for those cases where there was a match.

II. ELECTRONIC VITAL RECORDS SYSTEM

A. Overview

As discussed in the previous section, OVRS maintains electronic databases with individual level information for marriages, divorces, births, and deaths. Each of the four are maintained in separate databases housed on DOH's local area network.

All staff within OVRS have access to the data. Staff programmers and analysts have developed canned queries that staff run to generate basic, aggregate-level reports. In addition, staff conduct more specialized analysis on the individual level data using various statistical packages (e.g., Crystal Reports, SAS).

OVRS has not made a concerted effort to link the databases. In the case of marriage and divorce, there are two main barriers that prevent an easy linkage. First, while it recently started collecting SSNs on the marriage application (at the request of the state child support enforcement agency), the state does not collect SSNs on the divorce certificate. Second, not all couples that divorce in Utah were married there (and vice versa).[18] As such, not all divorces have a corresponding marriage record.

As noted above, some counties have begun to implement their own electronic marriage data collection systems, independent of the state. The site visit actually prompted a discussion between the vital registrar and the Salt Lake County Deputy County Clerk about instituting an electronic system.

Birth and death systems are electronic. The state recently reengineered its death registration system, which is described further below. Utah's birth system has not been updated since 1999. It is a client server system in which data are entered directly into the database. The state is currently in the process of reengineering the system; it is expected to be operational by January 1, 2009. OVRS anticipates that the final product will have a similar web-based interface similar to the EDRS.

B. Death Registration System

Utah rolled out a new electronic death registry system (EDRS) on August 1, 2006. The EDRS is a web-based system, housed on state servers, that allows all relevant parties to input and view information from the death certificate.

While OVRS does not have any similar plans for reengineering its systems for registering marriages and divorces, its experience in implementing the EDRS may be instructive for other states looking to reengineer their vital statistics registry systems.

EDRS was the result of a long planning process. OVRS had a dedicated staff person responsible for coordinating the effort. In addition, OVRS convened an advisory committee to oversee the process. The committee included the state registrar and other relevant OVRS staff as well as funeral directors, physicians, local registrars, and medical examiners.

With programmers on staff, OVRS was able to go through a process of developing a series of prototypes of the system that advisory committee members could review. This included discussion of individual screens, flow of the data entry mechanism, and identifying which entities were responsible for entering which fields.

[18] Many people come from out of state to get married in Utah. It is common for Mormons to come from out of state to get married in an LDS Temple in Utah.

In designing its EDRS, OVRS relied heavily on its experience with its recently implemented Registry of Stillbirth Events. Using the same web-based application, OVRS rolled out this tool in early 2005. Because it dealt with substantially lower numbers and far fewer users, it was able to serve as a trial run for the EDRS.

The EDRS roll-out began with beta-testing by advisory committee members. Following the beta-testing, the system was quickly embraced by the majority of the relevant parties in the state. Implementation was greatly aided by the fact that the state medical examiner put out a notice telling funeral directors that use of the new system was required. Within two months over 90 percent of all funeral directors in the state were using the system.

The vital registrar noted two important lessons applicable to future efforts to create electronic marriage and divorce systems.

Prioritize frequent users. To increase buy-in among physicians, OVRS identified the 100 physicians in the state that had certified the most deaths in the past year. The state found that these physicians were responsible for certifying the bulk of the deaths in this state, and OVRS spent considerable time demonstrating the benefits of the new system to these users.

Leave local structures in place. The system received similar support from the local registrars in each of the 11 health districts in the state. OVRS staff noted that support from the registrars was a direct result of the state's efforts to include them throughout the planning process. Equally important, OVRS recognized that the previous system had been an important source of revenue for local health districts. In implementing the new system, OVRS made sure to leave the existing fee structure in place. Support from the local registrars was very important as the local registrars, especially in the more rural areas, had strong relationships with the key players in death registration (e.g., local physicians). The registrars' support for the system was a strong factor in getting other key local partners involved.

III. LESSONS LEARNED

Discussions with staff at OVRS and the two County Clerks' offices revealed several lessons that would be valuable to other states and local areas that are considering electronic upgrades to their marriage and divorce statistics collection and storage systems.

Obtain early buy-in from all parties involved. OVRS' experience implementing its EDRS underscores the value of developing and maintaining relationships with key partners. Through an advisory committee, OVRS was able to ensure that all of the key players would feel as though they had a hand in the design and implementation of the new system. Similarly, the advisory board ensured that OVRS was able to create a system that was responsive to the needs and concerns of the different parties. For example, OVRS understood that local officials would not want to relinquish control under the new system. Recognizing the institutional knowledge of local registrars (as well as the importance of death certification as a revenue stream), OVRS took steps to ensure that the registrars would remain an integral part of the new system.

Communicate data needs to local areas. OVRS has worked closely with the five counties that are currently submitting marriage data electronically to ensure that the counties' systems would

generate the necessary data. While OVRS remained flexible about the forms used and the format of the data, OVRS staff worked diligently to ensure that the counties were aware of the necessary data elements they were required to submit. Outreach on the part of the state is equally valuable in local areas that are not currently submitting marriage records electronically. As more and more local areas contemplate making the shift towards a more automated system, the state will benefit from being involved as early in the process as possible. This will allow the state to communicate its needs to the local area and increase the chances that the new system is compatible with the existing state level system.

Explore ways to link vital statistics databases. As noted in the previous section, the current configuration of Utah's vital statistics databases is not conducive to linkages across different events (e.g., linking marriage and divorce records). The easiest way to facilitate these linkages is through a unique identifier—typically the SSN. However, many agencies are justifiably reluctant to request this information when not absolutely necessary. States may want to consider the potential value of requesting this information, as well as possible alternatives (e.g., applicants' driver's license numbers). Most importantly, increased uniformity in the information collected for different events will make linkages more feasible.