

NEVADA STATE EARLY CHILDHOOD DATABASE PLANNING: FEASIBILITY ANALYSIS REPORT



June 2009

Nevada Institute For Children's Research & Policy

NICRP

HEALTH SCIENCES

School of Community Health Sciences

*This project was funded by the State of Nevada Early Childhood Comprehensive System/
Head Start State Collaboration Office*

Nevada Institute For Children's Research & Policy

NICRP

This report was prepared by the Nevada Institute for Children's Research and Policy through a contract with the State of Nevada Early Childhood Comprehensive Systems/Head Start State Collaboration Office.

NICRP Staff Contributors:

Denise Tanata Ashby, J.D.
Executive Director

Helen Zaikina-Montgomery, M.A.
Research Analyst

Tara Phebus, M.A.
Research Analyst

Jennifer Waddoups, MPH
Research Assistant

Enrique Lopez
Research Assistant

About the Nevada Institute for Children's Research and Policy

The Nevada Institute for Children's Research and Policy (NICRP) is a not-for-profit, non-partisan organization whose primary goal is to advance the well-being of children in Nevada. As a research center in the School of Community Health Sciences at the University of Nevada Las Vegas, NICRP is dedicated to conducting academic and community-based research that helps guide the development of policies, practices, and programs which serve to enhance the health and well-being of children and their families. For more information about NICRP, please contact us or visit our website at <http://nic.unlv.edu>.

Nevada Institute for Children's Research and Policy
School of Community Health Sciences, UNLV
4505 S. Maryland Parkway, Box 453030
Las Vegas, NV 89154-3030
Phone: (702) 895-1040
Email: denise.tanata@unlv.edu
Web: <http://nic.unlv.edu>

TABLE OF CONTENTS

I. INTRODUCTION	1
II. TYPES OF DATABASES	3
III. DEVELOPMENT OF AN EARLY CHILDHOOD DATABASE IN NEVADA	6
A. METHODOLOGY	6
1. Early Childhood Data Search.....	6
a. Literature Search for Similar Databases	7
b. Review of Legal Issues and Data Sharing	7
c. Database and Data Warehousing.....	7
B. RESULTS	8
1. Early Childhood Data.....	8
a. Data Currently Available	8
b. Examples of Databases Currently Available in Nevada	16
c. Data Not Currently Available.....	18
d. Limitations of Current Databases	19
2. Database Comparison and Options	20
3. Review of Legal Issues and Data Sharing	24
C. DATABASE RECOMMENDATIONS.....	26
1. Database Development and Configuration	26
2. Acquisition of Datasets	29
3. Inclusion of Related Materials	29
4. Estimated Cost and Timeline for Database Development.....	29
REFERENCES	32
APPENDIX A: CONTACT INFORMATION FOR EARLY CHILDHOOD DATA ORGANIZATIONS	33

I. INTRODUCTION

Childhood data is an important informational and analytical asset for all individuals and organizations who are interested in advancing early childhood education, policy, and welfare, such as public health officials, legislators, and researchers. Early education programs and policy depend upon the availability of accurate and timely data. To increase the efficiency of data reporting and collection, a centralized database is necessary. Increasingly, modern early childhood and public health policy and practice require advanced computer-assisted technology to serve the diverse needs of the public. A myriad of data are collected on a regular basis by state, federal, and private organizations. These data collection efforts usually involve the collection and reporting of specific type of data (e.g., health data, child welfare data, juvenile justice data, etc.). As a result, most state and federal databases are parsed in terms of type of information they gather, share, and provide. If an individual, a policy-maker, or a researcher needs to access certain early childhood data, they may need to access several data reporting agencies or databases instead of having the option to come to one comprehensive database for data needs. These data searches may be time ineffective and may not produce the desired result. The advances in early childhood education and welfare, children's public policy, research, and needs assessments would be well-served by an effort to gather, store, and make available a wide variety of information, including, but not limited to health, welfare, and education-related data.

The U.S. Census reports that there were 265,006 children ages 0 to 8 in Nevada in the year 2000.¹ According to the 2008 Nevada State Demographer population estimates², there are 2,783,733 residents in the state of Nevada. The 2005 population estimates indicate that 179,772 of Nevada's residents are children under the age of 5 years (7.5% of population) and another 34,633 are children who are 5 years old (1.38%), although these numbers are likely to be higher today. There are an additional 454,285 children who are between 6 and 18 years old (18.07%)³. Due to its geographic properties, Nevada is sparsely populated in certain areas. The state has a low average population density (18.2), a statistic that can be somewhat misleading when reported as an average for the state. There are sixteen counties and one independent city (Carson City) in the state of Nevada with two major metropolitan areas, Las Vegas in Clark County and Reno in Washoe County. The remainder of the counties are either rural or frontier, the latter defined as having a population of six or less people per square mile and whose average commute to the nearest hospital is 60 or more minutes.⁴ Clark County residents comprise approximately 70% of the state's population, Washoe County constitutes 16% of Nevada's population with the rest of the population distributed throughout rural and frontier counties.⁵

Like many other states, Nevada faces challenges in the areas of children's well-being, poverty, healthcare, and policy. These challenges, however, are particularly pressing in Nevada. Recent cross-national surveys rank Nevada near the bottom on issues such as children's health insurance, immunizations, and student achievement.⁶ Resource and data availability are barriers to addressing these issues. The distribution of children's services and resources is somewhat fragmented throughout the state. This fragmentation presents significant challenges for policymakers, researchers, and state agencies working to meet the needs of children in the state. Appropriate assessment of the needs of children in the state can be achieved with more alacrity if a comprehensive data warehouse of Nevada children's data existed. The existence of such a data

warehouse will allow for the effective use of data by all key stakeholders involved with children's issues and policies in Nevada. For example, a data warehouse will benefit academic researchers conducting research on a variety of childhood issues in Nevada as well as state and local policymakers who rely on the availability of accurate data to inform children's policy in the state.

Currently, there is a gap in early childhood data provision for research, grant writing, needs and best practices assessments, and policy research. This gap demonstrates the need for an early childhood database that is available to the public, can be queried for combinations of variables, and contains a comprehensive set of variables on early childhood. NICRP has researched the potential feasibility for the creation of such a database and estimated the costs and timelines involved based on the recommendations proposed in this report. As part of this research, NICRP has performed an assessment of the available data accessible at private, state, and federal levels.

The development and implementation of a comprehensive data warehouse is both a time and resource intensive process. Acquiring the data requires not only the identification of potential data sources, but also discussions about data ownership, data sharing, and confidentiality. In order to achieve the vision of a children's data warehouse in the State of Nevada, key organizations and individuals in the state must collaborate to design and create such a system. Additionally, ample consideration should be given to the design and function of an interactive data warehouse system that is easy to use and that provides useful data and resources.

This report is intended to assess the feasibility of creating a childhood data warehouse for public use in the State of Nevada. This database would be available to the public and could be used for the purposes of early childhood education development, advocating for children's policy, needs assessments, grant writing, and any other aims to improve the lives of Nevada's children. The proposed data warehouse would be available to all members of the community who have a vested interest in early childhood, children's issues, policy, and general well-being of children in the State of Nevada as well as the general public. This project focuses on the public use, availability, and comprehensive components of the proposed data warehouse.

The goal of this report is to:

- Analyze the feasibility and viability of the creation of a comprehensive database that contains accurate and timely early childhood data for children in the State of Nevada.

This goal was achieved by reviewing and compiling:

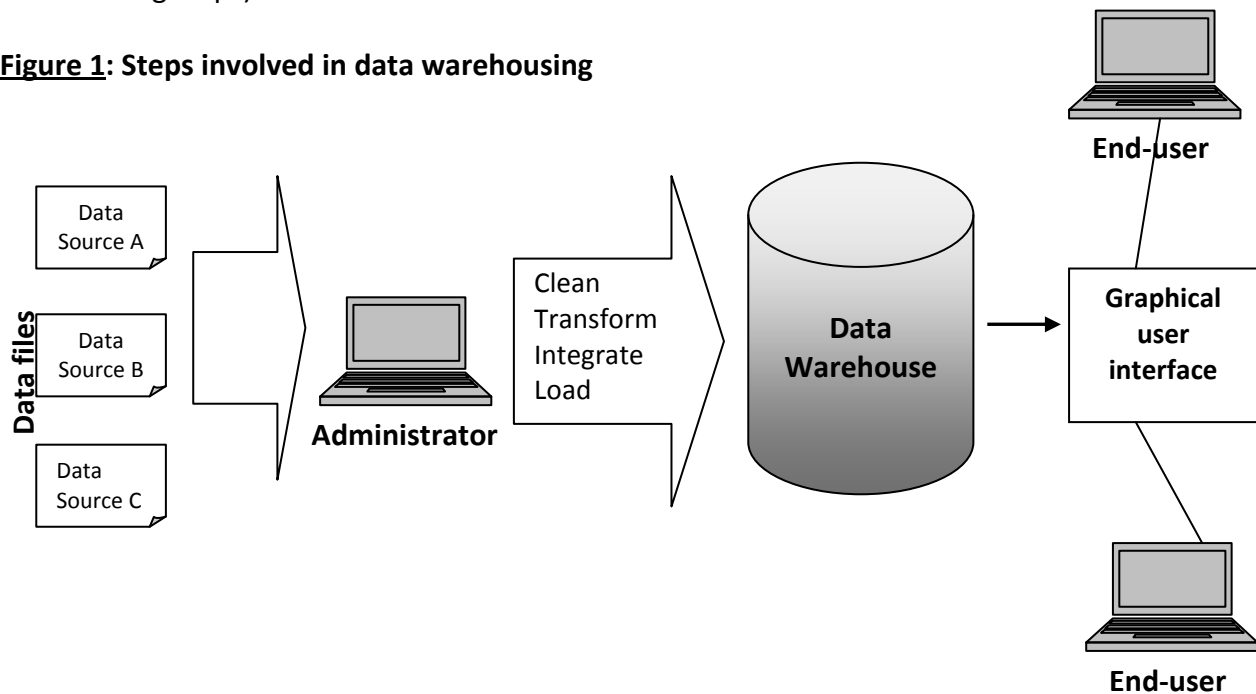
- Early childhood data currently available from the organizations and agencies within the State of Nevada
- Early childhood Nevada data currently available from the organizations and agencies outside of the State of Nevada
- Databases currently used in the State of Nevada and their capacity to meet the needs for a comprehensive database
- Legal issues and other barriers that may be encountered in the process of building a comprehensive database
- Database options and recommendations, including the timeline and budgets involved.

II. TYPES OF DATABASES

The science of data storage, data integration, and data warehousing involves extensive and, sometimes complex terminology. For this reason, this section is devoted to providing definitions and explanations of the terminology that is used by those in the field of data storage and to clarify the terminology that will be used throughout this report.

The term “database” usually refers to a collection of interrelated data and a set of software programs used to manage and access the data. Most publicly available data as well as internally gathered organizational and agency data is stored in some type of database. Data is generally stored in a data warehouse or a data repository (see Figure 1 for a simple diagram of data warehousing steps).

Figure 1: Steps involved in data warehousing

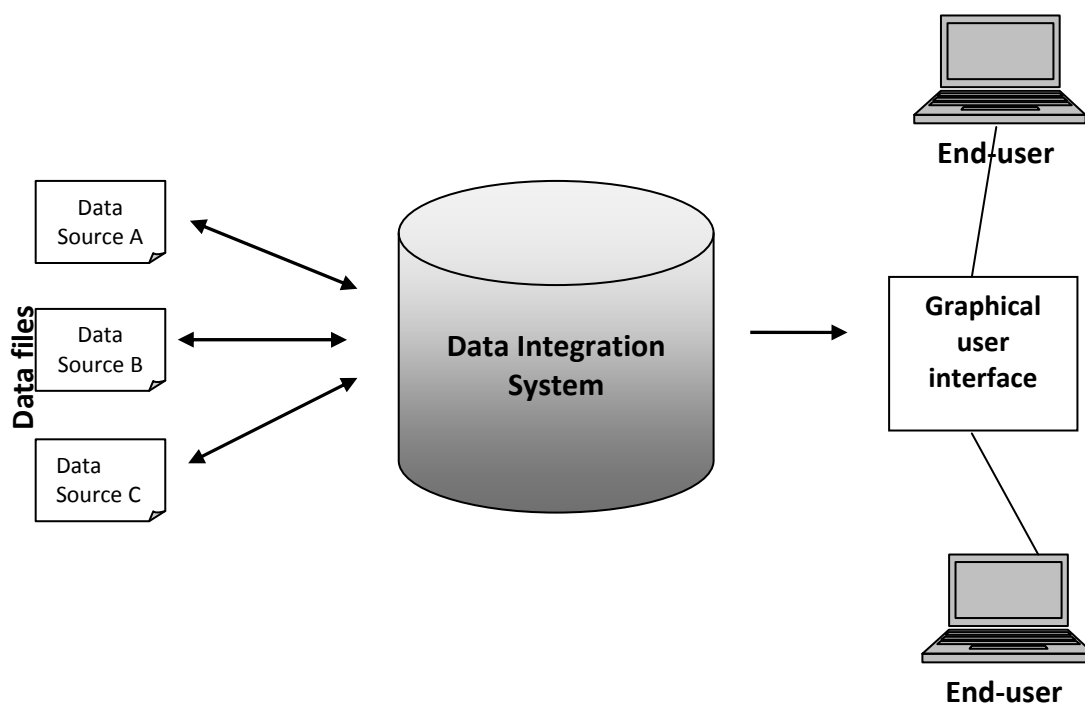


A “data warehouse” or “data repository” is defined as a repository of information collected from multiple sources, stored under a unified schema and usually resides on one site.⁷ Usually, the site of data residence is a server located in a place accessible to the database administrator, an organization, agency or persons in charge of administering the database. The terms “database”, “data warehouse” and “data repository” are used interchangeably in the field of data warehousing and data mining. Databases and data warehouses are usually stored on a data warehouse server. Data based on the end-user’s request are selected at the data warehouse level and reported back to the end-user. The end-user typically interacts with the data warehouse via a graphical user interface. A “graphical user interface” is a module that communicates between users and the data warehousing system or a database. This module specifies the type of information that the end-user is seeking to help narrow the search. This component also allows the user to browse the database or data warehouse for other patterns of data or information that they may be interested in examining. In a typical data warehousing process, a database or data warehouse administrator receives data from the original data sources. In the case of a state database, the

data warehouse administrator is usually a state-appointed organization or agency and the data come from other state agencies or organizations that collect data as a part of their process. The data is cleaned, transformed, and integrated (if necessary) by the data warehouse administrator. The data administrator then uploads the data into a data warehouse, which is housed on a server. The end-users are able to access the data through a graphical user interface. This interface offers options for the type of data variables that may be queried and the type of reports that may be obtained from the database.

In addition to warehousing data, data can also be integrated. Although sometimes data warehousing and data integration are used interchangeably, these terms are considerably different. Data integration involves integrating multiple databases or data files. Usually, attributes representing a given concept in a dataset are represented differently depending on the entity in charge of collecting the data. For example, age may be represented in months in one data set and in years in another or weight may be represented in pounds or kilograms. In this case, the data warehouse that houses data from different sources must take on the task of cleaning and pre-processing data into a uniform format before it can be accessed by the end-user. At the level of state databases, data integration is usually executed in the form of a case or records management system. Typically, these systems involve data specific to one field (e.g., healthcare, education), but case management systems can encompass more than one type of data (for an example of a data integration system, see Figure 2). Because data from different sources is usually collected in different formats, there are three options for reconciling this within a data integration system.

Figure 2: An example of a data integration system



One option is to have the data come in to the data integration system in the format in which it is originally collected. Then a system administrator, similar to the administrator in Figure 1 would clean and transform the data for input into the data integration system. Another option is to have uniformity among all of the data sources in terms of data collection formats. That is, all agencies,

organizations, or persons who gather data and input it into the data integration system would use the same data format. This option presents an issue of standardizing the process of data collection at the agency level, which is not only time consuming, but in some instances may not be possible due to the nature of data being collected.

Finally, the third option for data integration is to allow each of the data collecting entities to determine which portions of data or data variables from their databases they would like to open for integration into the data integration system. When these variables are in a data integration system, they are usually open for access to the other contributing data collectors as well as to the public through a user interface. To this end, in the fields of health care, education, welfare, or judicial systems, data integration usually involves case management systems. Case management systems are open source systems that allow multiple or parallel users to input and modify a central database of records. Usually, these records are generated by one of the users of the data base with each user subsequently adding their own case-specific information.

Throughout this document, the terms “data warehousing” and “data integration” will not be used synonymously. “Data warehousing” will refer to the consolidation of data in a data repository which is administered by a database administrator and available to outside end-users and will be used interchangeably with the term “database”. The term “data integration” will refer to case data management systems that allow input from multiple data gathering sources and allow those sources to choose which portions of their database they allow to be viewed by others.

III. DEVELOPMENT OF AN EARLY CHILDHOOD DATABASE IN NEVADA

A. METHODOLOGY

The methodology for this project consisted of:

- An assessment of currently available queryable data in Nevada
- A comprehensive search for early childhood (ages 0 to 8) data available for the State of Nevada
- A literature search for similar databases at the state or federal level
- A review of legal issues associated with data sharing and data proprietorship
- A review of data base, data warehouse, and data integration procedures

1. Early Childhood Data Search

The NICRP research team conducted a comprehensive search for data that reports on early childhood in the State of Nevada. For the purposes of this report, an early childhood indicator was defined as a feature or a measurable marker of progress, success, or state of individuals in the early childhood (0 to 8 years) age group.⁸ Some of the early childhood indicators are descriptive, demographic variables, such as age, gender, ethnicity, and family income. Other indicators are divided into broad categories specified by the Early Childhood Comprehensive Systems Initiative (ECCS) as content areas of healthcare, social-emotional development and mental health, early care and education, parent education, and family support.⁹ These broad categories and demographic variables were adopted as guidelines for broad areas in searching for currently existing early childhood data during the initial data search. Specifically, NICRP searched for collected and available data in the following indicator categories:

- Healthcare
- Development and Mental Health
- Early Childcare and Education
- Child Welfare
- Human and Social Services
- Demographics

This search utilized Internet search engines, deep Internet search methods, and literature on early childhood data. The latter was used for guidance to advise the NICRP research team about any variables that may have been missed during the initial searches. The search included data on a federal level, private level, as well as data that is reported by agencies in Nevada and are available for public use.

Literature Search for Similar Databases

A literature search for similar databases was conducted. This search involved academic literature reviews as well as Internet searches. During the search, specific emphasis was given to state, county, and federal organizations. The results of the search will be discussed below.

Review of Legal Issues and Data Sharing

The research team conducted a review of issues relevant to data sharing including the necessary steps for establishing data sharing agreements and collaborations. Federal and state regulations relevant to this project were also examined.

Database and Data Warehousing

NICRP consulted with an outside expert, the National Supercomputing Center for Energy and the Environment, to determine the logistics and costs associated with setting up a data warehouse for the recommended database outlined in this report.

B. RESULTS

1. Early Childhood Data

Currently, data are gathered both in and out of the state of Nevada. These data are collected for a wide variety of purposes. Select data are available for public access and use, while other data are held by the data collectors and are used for internal purposes of the organization or agency. This section provides the results of a comprehensive data search performed by NICRP for early childhood data gathered about children 0 to 8 years old in Nevada. The data presented here does not comprise an exhaustive list. Many data collection efforts are private, not published, or not available on the Internet. However, the data presented here gives a representative overview of the type of data and data format that is currently available to the public.

a. Data Currently Available

The researchers were able to identify more than ten agencies at the state and federal level as well as private foundations that possess, collect, or perform secondary reporting of early childhood data for children in the State of Nevada. Most of the data variables suggested for collection in the literature on early childhood were found during the initial search. However, some data was either not found or appears not to be collected on a consistent basis by any organization or agency. The unavailability of data specifically for children is one key issue found by the NICRP research team in the process of data compilation. In our research on the available data for children, most of the data were combined into either data for the entire state or broad age categories. For example, we examined the Kids Count data which provide statistics on children in each state. For most of the variables that were found in the tables provided by Kids Count, statistics for children were available, but they were not reported by age or age cohort, rather, they were reported for the category “children”. This makes it difficult to gather specific data for age cohorts. Additionally, statistics are not consistently available by year. Some data is available for the last ten years, while other data is available for only one of the last ten years. Nevertheless, early childhood data is available from state and federal agencies that can be used in a locally housed and maintained database.

Most of the data that was found is reported by federal or state agencies. Although private foundations (e.g., Kaiser Family Foundation, Annie E. Casey Foundation) provide state factsheets or prepared state reports, the data for these usually comes from state or federal agencies. This duplication and dissemination of data by multiple unrelated sources proved challenging in terms of defining an original data source or collecting agency who can be further contacted for obtaining data in the process of database compilation.

All of the data source agencies and the variables they provide are listed in Tables 1 through 5. Appendix A provides the addresses, telephone numbers (when available) and methods of data collection and dissemination for each of the source agencies listed in the following tables. Below are abbreviations and corresponding full agency named for data in Tables 1 through 5.

Abbreviations for Data Source Agency Names

Abbreviation	Full Agency Name
ACF-USDHHS	Administration for Children and Families – U.S. Department of Health and Human Services
CB	U.S. Census Bureau
CDC	Centers for Disease Control and Prevention
CDF	Children’s Defense Fund
MCHB-HRSA	Maternal and Child Health Bureau – Health Resources and Services Administration
NCES	National Center for Education Statistics
NDE	Nevada Department of Education
NSHD	Nevada State Health Division
NDHHS	Nevada Department of Health and Human Services
SND	State of Nevada Demographer

Table 1: Early Childhood Health Variables

Agency	Type of Data/ Variables	Variable Categories	Years Available	Format	Interactive†
NDHHS	Mother Characteristics	Age	1990- 2004	HTML	Yes
		Marital Status			
		Weight Gained			
		Education			
		Previous Births			
		Tobacco during pregnancy			
		Alcohol during pregnancy			
		Urban/ Rural Residence			
	Infant Characteristics	Birth weight	1990- 2004	HTML	Yes
		Age of gestation			
		Small for gestational age			
		Single or multiple births			
		Birth Attendant			
		Race/ Ethnicity			
		Gender of Newborn			
		Outcome (Birth/Abortion/Death)			
		Congenital Abnormalities			
		Facility where born			
		Birth Method			
		Adequacy of Prenatal Care			
		Place of Birth			
		Common causes of death			
		Specific causes of death			
		Suicide/ Form of Suicide			
		Cancer/ Type of Cancer			
		Accident/ Type of Accident			
		Number of Infant Deaths			
Infant Mortality					
Trimester started Prenatal Care					
# of Prenatal Care Visits					

† Interactive indicates that the end-user can query the database and obtain a frequency based on the specified variable parameters

Table 1: Early Childhood Health Variables (continued)

Agency	Type of Data / Variables	Variable Categories	Years Available	Format	Interactive
NDHHS (Continued)	Prenatal Care	Adequacy of Prenatal Care	1990 - 2004	HTML	Yes
		Age			
		Mother's Education Level			
NSHD	Mother Characteristics	# of Previous Births	1991 - 2004	Posted as PDF reports	No
		Marital Status	2001 - 2004		
		Age	1994 - 2004		
		Low Birth weight	1996 - 2004		
		Pre-Term Births	1994 - 2004		
	County of Birth	1995 - 2004			
	Infant Characteristics	Month of Birth	1986 - 2004		
		Mother's Education			
Health Care Characteristics	Marital Status	2001 - 2004			
	Low Birth Weight	2001 - 2005			
Kids Count	Mother Characteristics	Infant Mortality Rate	1997-2004	HTML (Canned query)*	Yes
		Low Birth Weight			
	Infant Characteristics	Infant Mortality	2005		
		Sex of Infant			
CDF	Infant Characteristics	Prenatal Care	1994-2004	Posted as PDF Reports	No
		Labor Complications			
MCHB (HRSA)	Infant Characteristics	Smoked during Pregnancy	1995-2004	PDF Reports, HTML Tables, Raw data	No
		Low Birth weight			
		Prenatal Care			
		Labor Complications			
		Smoked During Pregnancy			
	Prenatal Care	Mother's Education	2001		
		Age	1990-2005		

* Canned query indicates that end-users have data choices pre-determined by the agency

Table 1: Early Childhood Health Variables (continued)

Agency	Type of Data / Variables	Variable Categories	Years Available	Format	Interactive
CDC	Mother Characteristics	Marital Status	1995-2005	Custom Table Creator tool available on Vital Statistics website (canned query).* Some stats also available in PDF report.	No
		Mother's Race			
		Anemia			
		Cardiac Disease			
		Hypertension			
		Diabetes			
		Father's Age			
	Sex of Infant				
	Father Characteristics	Birth Weight	1995-2005		
	Infant Health Characteristics	Gestation Period	1995-2005		
		Fetal Alcohol Syndrome			
		Anemia			
		Hyaline Membrane Disease			
		Birth injury/ Seizures			
		Meconium Aspiration Syndrome			
		Assisted Ventilation			
		Polydactyly/Syndactyly/Adactyly			
		Anencephalus			
		Cleft Lip/ Palate			
		Chromosomal Anomalies			
Circulatory/ Respiratory Anomalies					
Malformed Genitalia					
Heart Malformations					
Microcephalus					
Musculoskeletal/ Integumental Anomalies					
Central Nervous System Anomalies					
Omphalocele/ Gastroschisis					
Rectal Atresia Stenosis					
Renal Agenesis					
Spinal Bifida/ Meningocele					
Tracheo- esophageal fistula/ atresia					

* Canned query indicates that end-users have data choices pre-determined by the agency

Table 2: Early Childhood Education Variables

Agency	Type of Data /Variables	Variable Categories	Years Available	Format	Interactive
SND	School enrollment	School level (grade)	2000	PDF	No
		School type (K-12)			
NCES	Student Characteristics	Academic Performance	1986-2007	HTML tables	No
		Grade Level			
		Race/Ethnicity			
		Gender			
		Region			
		Special Program Placement			
		Disability			
	School Characteristics	Total Enrollment	1993 & 2005	HTML tables	No
		Staff/Faculty			
		Funding			
		Region			
	Family Characteristics	Family Reading Practices	1993 & 2005	HTML tables	No
Family Poverty Status					
Children in Early Childcare Characteristics	Family Poverty	1991 - 2005	HTML tables	No	
	Parental Education				
	Race				

Table 3: Child Welfare Variables

Agency	Type of Data / Variables	Variable Categories	Years Available	Format	Interactive
CDF	Poverty	Above poverty (household)	2008	PDF Factsheets	Yes (canned query)
		Extreme poverty			
SND	Poverty	Poverty status	2000	HTML	Yes
		Disability (by poverty)			
ACF (USDHHS)	Adoption	Number of adoptions	2000-2006	PDF	No

Table 4: Childcare Variables

Agency	Type of Data / Variables	Variable Categories	Years Available	Format	Interactive
CB	Householder Characteristics	Marital Status	2000-2007	American Community Surveys conducted year round.	Yes (canned query)
		Poverty Status			
		Income			
		Kinship			
		Employment Status			
ACF (USDHHS)	Child Characteristics	Gender	1990-2006	PDF Tables Tables on ACF Website	No
		Age			
		Ethnicity			
		Time Between Termination of Parental Rights (TPR) and Finalization			
		Receipt of State or Federal Subsidiary			
		Prior Relationship to Adoptive Parent			
		Special Needs Status			
		Adoptive Family Structure			
		Children in Foster Care			
	Child Maltreatment	Abuse Type	1995-2006	PDF and Excel Tables	No
		Services			
		Perpetrators			
		Fatalities			
Children Reports					
CDC	Breastfeeding	Breast Feeding	2000-2005	PDF and Excel Tables	No
		Exclusive Breast Feeding			
		Formula Supplementation			

Table 5: Other Early Childhood Variables

Agency	Type of data / Variable	Variable Categories	Years Available	Format	Interactive
SND	Living/Family Status	With two parents	2000	PDF reports (profiles)	No
		With one parent			
	Live-in Parent(s) working status	In labor force			
		Not in labor force			
	Population (Demographics)	Gender			
		Age by gender			
		Live-in Parent(s) working status			
		Living/Family Status			
		Age Group			
Region					
Gender					
CDF	Population (Demographics)	Race	2008	PDF factsheets	Yes (canned query)
CB	Population (Demographics)	Age Group	2000-2007	American Community Surveys conducted year round.	Yes (canned query)
		Gender			
		Ethnicity			
		Living with Grandparent			
		Poverty Status			
		Citizenship Status			
		Grandparent as Householder			
		Family Income			
		Family Type by Residence			
		School Enrollment			
		Language Spoken			
		Ability to speak English			
		Disabilities			
		Receipt for Food Stamps			
		Employment Status of Parent			
Immigrant Status					

b. Examples of Databases Currently Available in Nevada

The following section presents an overview of databases and other data collection efforts that are currently taking place in Nevada and are available for public use and access. This section is not a complete review of all of the data collection efforts currently taking place in Nevada. Some of these efforts may not be available to the public or are in the data gathering stages. Rather, this section provides an overview of the databases that are currently available for public access from State of Nevada agencies and identifies the strengths and limitations of those databases as they pertain to the vision of creating a comprehensive database.

State of Nevada Demographer Data

The State of Nevada Demographer (SND) is contained within the Nevada Small Business Development Center at the University of Nevada, Reno. The SND is funded by the Nevada Department of Taxation and conducts annual population estimates for Nevada's counties, cities, and towns. Regional Economic Models (REMs) are one of the methodologies employed by the SND. REMs are used to forecast and project estimates based on U.S. Census data. Although the SND has the capacity to create custom data requests for public and private agencies, limited data is available on their website. The data that is available on the SND website is in either a HyperText Markup Language (HTML) table format or in Adobe Portable Document Format (PDF).¹⁰ The variables that are available from the SND are: annual population estimates, annual population projections, age, sex, race, and Hispanic origin for the state's population, and profiles of Nevadans by top occupation groups (for detail, see Table 6).

Nevada Department of Health and Human Services (NIDHS Database)

The Nevada Department of Health and Human Services, Nevada State Health Division (NSHD) originates another source of data that is collected in Nevada. The NSHD maintains an interactive database of health data that is collected by the Center for Health and Data Research. The Nevada Interactive Health Database System (NIHDS) is a repository of health information from years for which that information is available. Most of the information in NIHDS allows the user to specify report parameters and year of interest and to obtain the population frequency for the query. As implied by its name, NIHDS contains only health data modules which include the variables shown in Table 6. Most of the modules are interactive, that is, the end-user can specify the variables that they would like to query and obtain a response in the form of a frequency and a percentage of population that match the variables specified in the query. The interactive data include all birth data, and cancer, death, population, and hospital statistics, however, some of the data on NIHDS cannot be queried. Specifically, the BRFSS and the YRBS only have data available for the specific questions of the survey. The result is reported as either a percentage or a frequency (not explained) of respondents and broken out by middle school and high school populations. Some of the data is not interactive and the end-user is limited in the options for query.

Table 6: Data currently available for public use from Nevada-based agencies

Agency	Type of Data	Data Variables	Year(s)	Format	Inter-active [†]
State of Nevada Demographer*	Annual Population Estimates	County, city, and town	2008	HTML	No
	Annual Population Projections	County	2008-2028	HTML	No
	Nevada's Age, Sex, Race and Hispanic Origin Estimates (ASRHO)	Five-Year Cohorts (number of individuals)	2005	HTML	No
		Selected Cohorts (e.g., males, females)	2005	HTML	No
	Profiles of Nevadans By Top Occupational Groups	Demographics (age, sex, race, marital status, education levels, family type, and transportation)	1990	PDF report	No
		Occupations	1990	PDF report	No
	Census 2000	Ethnicity by County	2000	PDF report	No
		Census Tract Maps	2000	Web link	No
	Nevada Census 2000	Geographic Level (state, county, place) •Primary, secondary, ancestry, disability, education, employment, household and family, income, language, migration, poverty, transportation, housing	2000	HTML	Yes
		Tract Level (county, place) •Geographic tract profiles	2000	PDF	Yes
Nevada Department of Health & Human Services – Nevada State Health Division*	Nevada Interactive Health Database System (NIHDS)	Low birth weight/prenatal care/fertility/ teen birth	1990-2004	HTML	Yes
		Behavior Risk Factor Surveillance Survey (BRFSS)	1996-2001	HTML	No
		Youth Risk Behavior Survey (YRBS)	2001, 2003	HTML	No
		Cancer	1990 - 2003	HTML	Yes
		Death	1990 - 2004	HTML	Yes
		Population	1990 - 2005	HTML	Yes
		Hospital Discharge	1991-2005	HTML	Yes

*The data available from the SND are generally not available for early childhood, with some exceptions.

†Interactive indicates that the end-user can query the database and obtain a frequency based on the specified variable parameters

Table 6: Data currently available for public use from Nevada-based agencies (continued)

Agency	Type of Data	Data Variables	Year(s)	Format	Inter-active [†]
Nevada Department of Education	Nevada Accountability Report: State, School, District Profiles	Total Students	2003 - 2008	HTML	Yes
		Race			
		Average Daily Attendance			
		Student/Teacher Ratio			
		Class Size			
		Graduation Rate			
		Dropout Rate			
		Transiency Rate			
		Violence Events			
		Weapons Events			
		Substance Events			
		Habitual Offenders			
		Habitual Truancy			

Nevada Department of Education

The Nevada Department of Education reports school statistics (see Table 6) for years 2003 through current. This report is made available on the Nevada Department of Education website in compliance with federal and state accountability guidelines. The search allows the end-user to view a school’s performance with regard to certain reported indicators across time or to compare two or more schools to one another in terms of the reported indicators. The end-user cannot specify which indicators they want to access. All of the indicators are reported for the year and/or school selected.

c. Data Not Currently Available¹

Although data for many early childhood indicators was found in the process of the data search, there are some data that are either not available or not easily located. Most of the identified data was in the area of health care or health characteristics. This could be explained due to the fact that health-related data is most often mandated by local or federal legislature to be publicly reported. Some of the data listed as “not available” in this section are data that do exist in some format, but are not currently publicly available. For example, the Children’s Cabinet reports on the demographic status of child care facilities in Nevada, indicating the number of centers, spaces and costs, however the information is currently only available in report format. Some of the data that were not located at the time of this report include, but are not limited to:

- Homelessness status in early childhood
- Nevada SCHIP detailed use by 0-to-8 population
- Early Childhood Education Centers and Home Care (number, utilization, price, etc.)

¹ This section lists data that was not located by NICRP during the data search. This data may be available, but not easily located or collected and not available to the public.

- Child welfare data for the 0-to-8 population
 - Placement
 - Adoption
 - Case (load and status)
- Zip code-specific data in:
 - Immunization rates
 - Insurance coverage
 - Family income

Efforts to identify sources of these and the other data, as well as working with organizations to collect necessary data, should be made during development and planning phase of an early childhood database in Nevada. Data included in reports from various agencies and researchers may be complimentary to the database and may be converted into a format that would allow inclusion into a system that is queryable.

d. Limitations of Current Databases

There are a few limitations to the current Nevada public use databases in terms of their usefulness for finding early childhood data. Among them are:

- Limited scope of information and/or types of information
- Complexity of access and use
- Timeliness of data reporting
- Information for all ages of Nevadans (not broken out for specific ages)

The State of Nevada Demographer data is limited in the scope of information that it provides and is limited in its ability to provide data specifically about the early childhood population of Nevada. Most of the data is not available specifically on children, because children are reported as a part of family or household. Data that is available for the early childhood ages is generally divided into five year cohorts, which makes it difficult to estimate statistics for specific ages or age ranges. While the reports and factsheets on the State of Nevada Demographer’s website are fairly simple to access some of the reports are difficult to interpret because they do not include explanations for terminology that is used. Although the State of Nevada Demographer reports 2008 population estimates for Nevada cities and counties, most of the information available on the website is ten years or older.

The NIHDS is limited in both the types and the scope of information that they provide for public use in terms of early childhood data. For example, only health information is available through this system. Thus, other information on children’s issues, such as the number of children in child care, foster care, or educational information is not available through NIHDS. Although there are no limitations with regard to the system itself (NIHDS was established specifically for the purpose of sharing health information with the public), the system is limited in terms of the availability of comprehensive set of data variables. Some of the data in NIHDS is not searchable, such as the YRBS. This poses a limitation on the types of reports that can be obtained from the survey data. While the NIHDS provides a comparatively wide range of ages for which health data is available, – the system is somewhat difficult to use. To assist users, directions on the use of the interface are provided, but the

user is taken to three separate screens before results are obtained. Most of the screens do not provide explanations about what the user is viewing, which makes it difficult for users to access information on the NIHDS. Also, the information that is displayed and the report that is provided to the end-user at the completion of a query are not easily understandable. The NIHDS's most recent year of available data is 2005. This four-year gap in data availability creates needs assessment issues for researchers concerned with using the databases to assess needs based on the most current data available. Also, this gap is inconsistent with one of the stated purposes of a Nevada early childhood database, which is to provide timely data for the purposes of research, needs assessments, and policy information.

The Nevada Annual Reports of Accountability are useful tools for grant writing, policy research, and geographic needs profiles. However, the reports are exceedingly difficult to locate. A search on the Nevada Department of Education website for the key words "Nevada report card" and "Nevada Reports of Accountability" do not produce links that take the end-user directly to the interactive database. The URL for the reports (www.nevadareportcard.com) is not intuitive in terms of data search on the Nevada Department of Education website.

Most of the data currently available in the databases in Nevada is combined to reflect counts for all ages of the populations or for age groups. This information is valuable, but does not provide specific information about age cohorts. This makes research and needs assessments particularly challenging.

2. Database Comparison and Options

Based on the information that has been obtained by NICRP during this analysis, there are two options for the State of Nevada to consider as potential blueprints for the creation of an early childhood database. When reviewing these options, it is important to consider the focus of the early childhood database, characteristics of end-users who are most likely to use this data base, and the costs and time requirements associated with designing and implementing such a data base. In the proceeding paragraphs, these data base options will be presented followed by NICRP's recommendation for an early childhood database. NICRP's recommended option will be presented in more detail including an implementation plan and a proposed budget for the plan. For an at-a-glance review of each option, see Table 7.

OPTION 1: Early Childhood Data Warehouse

An early childhood data warehouse is the first option for creating an early childhood data base in Nevada. The creation of a data warehouse would address several areas including the particular grant writing needs of educational institutions and research efforts at state and private levels. It would also assist researchers with needs assessment evaluations and aid policy research, evaluation, and development by allowing access to specified data variables in a timely and easy-to-use manner. A data warehouse is relatively easy to design, build, and maintain. The steps involved in building a data warehouse are illustrated in Figure 1 (p. 3) and are as follows.

Step 1

De-identified data is obtained from the various agencies, organizations, and other holding or gathering sources by the database administrator, usually in the form of data sets. The database administrator is responsible for cleaning and formatting the data sets to be uploaded into the data warehouse server. The data can be structured (e.g., row and column datasets) or unstructured (e.g., images), depending on the format that it is recoded and stored in by the original source.

Step 2

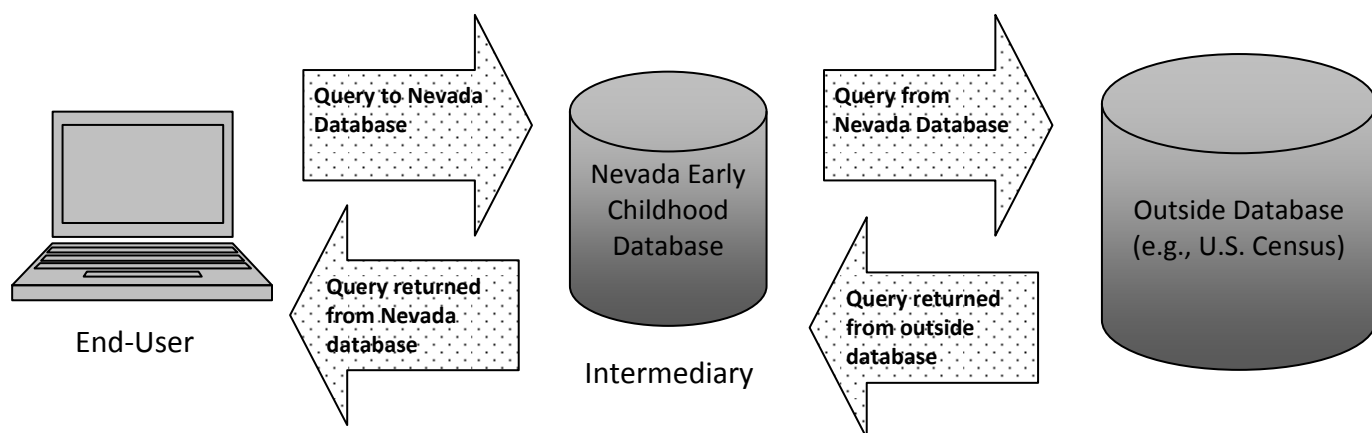
The data is uploaded onto the server by the database administrator and is made available for access to the end-user. End-users can access the database through a web-based interface, which is set up and maintained by the database administrator. The end-users can be authorized (required to use a username/password combination) or unauthorized, depending on the type of security provided by the database administrator and the needs of the database stakeholders. Data can be partially authorized for public use and partially require approval, based on the requirements of the originating data source.

Step 3

The database can also provide other information commonly requested by users. Because the end-user will be accessing the data warehouse through a web-based interface (website), the data warehouse can provide other types of information. For example, most frequently searched combinations of variables can be compiled into factsheets by the database administrator, which are readily available on a separate portion of the data warehouse website. Another resource that can be provided through the database website are links to resources, organizations, and federal agencies who gather, possess, or can help obtain necessary data which may be unavailable in the data warehouse. The database administrator would be responsible for adding these materials and features to the database. End-users would need to be surveyed for information on most needed database features.

In cases where data is not accessible or obtainable in raw format, the data warehouse server can serve an intermediary function for specific databases. In such cases, the end-user's query will be put into the local data warehouse server, the server will communicate with an outside agency's data and deliver the necessary results back to the end-user (for an intermediary function example, see Figure 3). This will allow the end-user to query databases that may be cumbersome to navigate directly and time consuming to use. Thus, the search can be simplified and shortened by the intermediary function of the local early childhood data warehouse.

Figure 3: An example of an intermediary function of data warehouse



OPTION 2: Child Data Integration/Data Management System

A data management system, also referred to as a data integration system, is a second option available for the creation of an early childhood data system. A data integration system may bypass the needs of grant writers, policy makers, and needs assessments. An early childhood data integration system in Nevada would include the development of a middleware system that would integrate health-care, child welfare, public assistance, and education programs with the purpose of allowing them to share data among themselves. The basic structure of a data integration system is illustrated in Figure 2 (p. 5).

The main purpose of a data integration system is to provide a way for organizations with similar functions or similar (shared) clients to share data with one another in real-time. The data integration software usually does not store any data. Rather, it serves a data retrieving function for the agencies that use it. Those agencies integrated into the data integration infrastructure can have access to those portions of each others' data that the originating agency specifies as data to be shared. The accessing agency can view the data without having to be logged on to the originating agency's database. For example, if a Medicaid provider needed to find out the results of a newborn's "heelstick test" or whether the test was performed at birth, he/she would be able to log onto the data integration system and look up the information for a particular child without having to contact the organization or hospital in possession of the original information, provided that the hospital made that information available in the data integration system.

A database can be a component of a data integration system. Regardless of the data integration system's structure, however, the database is usually a secondary component of the data integration process. There are a variety of ways in which a data warehouse and a data management system can exist together. The more common option allows public end-users to access some data in the data integration system's database component. In addition, this option does not authorize public end-users to alter any of the original agency data contained in the system.

The construction of a data integration system is a time-consuming, expensive process. One of the key components of a data management system is the availability of an identifier that can be used for each individual whose information or "profile" is in the system. This makes the data integration system less secure than a warehouse of de-identified data when access by the public is allowed. In

order to create a data management system and integrate data state-wide, the following steps need to be accomplished:

- Define which data variables are going to be shared between programs/agencies
- Determine identifiers for system profiles
- Establish efficient transfer of large data quantities between programs/agencies
- Integrate each of the programs'/agencies data systems for use with the data management system
- Establish one agency or organization responsible for entering demographic information into the system
- Build the data integration interface and determine where it will be housed and how it will be maintained
- Ensure data confidentiality and security
- Establish record-keeping procedures to track who accessed the database and what data was viewed

The general differences between data integration and data warehousing have been outlined previously in this report. However, of particular importance is the difference in costs and timelines involved in the development of a data management/integration system as opposed to a data warehouse. Since data integration requires the involvement of many participating agencies, a considerable amount of time would be required to standardize data input and to train the participating agencies and organizations including staff to properly input data. Because many front line staff are involved in the daily management and upkeep of records and data, this training component would be the most time intensive. NICRP has not conducted a budget evaluation for a data integration project because specific software will need to be developed to accommodate the needs of the participating state agencies and an estimate of software creation is outside the timeline of the present feasibility analysis. The complexity and cost of the software as well as the timeline for such a project usually depends on a variety of factors including: the number of participating agencies involved in the project, whether public is allowed to access some or all of the data, and whether existing state databases (e.g., NIDHS) can be integrated into the data management system. In addition to the time and financial commitment that a data management/integration system would require, it is also less secure in terms of outside access or altering (“hacking”) of the data compared to a data warehouse system.

In a data management system, the data, or at least portions of the data are live and accessible to agencies who are working on updating it or viewing it. This means that the data will have identifiers in order to identify and access each case in the system. The existence of identifiers would offer less security than static, unidentified data.

Table 7: Comparison of two early childhood database options

	Data Warehouse	Data Integration / Management System
Cost	Low	High
Timeline (to completion)	2-3 years	4-5 years*
Past Data Available	Yes	No
Ease of Use (for end-user)	Easy	Difficult
Past Data Available	Yes	Maybe
Federal Data Available	Yes	No
Ease of Implementation	Easy	Difficult
Data Sharing Issues	Minimal	High
Data Intermediary	Yes	Maybe
User Authorization Required	No (not necessary)	Yes (necessary)
Data Security	More secure (de-identified data)	Less secure (at least one identifier required)

*May take longer, depending on factors such as how many agencies will integrate data

3. Review of Legal Issues and Data Sharing

Since the Health Insurance Portability and Accountability Act (HIPAA) privacy rule was put into effect, health-care providers and other agencies who hold health-related information have sometimes been confused as to which information they can lawfully reveal and share with others.¹¹ A clear understanding of legally permissible disclosure of data and the data holders' responsibility is necessary in order to share data and establish data-sharing agreements.

HIPAA set national standards for the privacy of patient medical information, the activities of Institutional Review Boards (IRBs), and the informed consent for the use of medical information. The Privacy Rule, put into effect in 2003, established regulations for the use of protected health information (PHI). The Privacy Rule requires covered entities to notify individuals of the use of their PHI unless the disclosure or use is permitted by law. For example, healthcare providers can legally share PHI for public health purposes as long as the agency to which the information is provided is legally authorized to collect and receive the information. According to HIPAA, lawful recipients of personal health information include state, territorial, tribal, and local health departments as well as

federal health agencies. This provision also includes agencies working under a grant of authority from a public health agency.¹² Additionally, de-identified data are also exempted from these privacy regulations. De-identified data separates individuals' identities from their protected health information.

The Family Education Rights and Privacy Act (FERPA) regulations protect the privacy of student education records. The regulation is stringent with regard to disclosure of information without consent. FERPA allows disclosure to organizations or institutions for the purposes of developing, validating, and administering tests, student aid programs, and improving instruction.¹³ Like HIPAA, FERPA allows for the disclosure of de-identified information.

The proposed database will contain some data that may be protected by HIPAA and FERPA rules. However, it is anticipated that most of the data will have been de-identified before it is stored in the early childhood database. The extent to which HIPAA and FERPA protected data will be included in the database depends on the type of database that is created. In the event that a data warehouse is developed, no HIPAA or FERPA violations will occur, since the warehouse will contain either de-identified information or information that has been de-identified by the database administrator. Data sharing agreements will need to be developed for the data that will be used in the database.

The development of a data integration system will require an extensive process for the development of data sharing agreements and plans. Because a data integration/management system is a system in which multiple users (agencies) have access to individual case data and that case data must contain at least one common identifier (e.g., birth date, mother's name, etc.), the information that would be contained in a data management system is protected by both HIPAA and FERPA.

C. DATABASE RECOMMENDATIONS

Based on the data base options reviewed above NICRP recommends that the State of Nevada allocate funding for a data warehouse which will house existing Nevada early childhood data. The data should be gathered from organizations, agencies, and other data collectors. In some cases, data sharing agreements will need to be arranged before data can be transferred to the data warehouse. In addition, NICRP recommends that the warehouse feature a library of early childhood data in Nevada to both provide resources for grant writers, policy makers, and the public and serve an intermediary function for query of more complex databases at the federal level, as illustrated in Figure 3.

1. Database Development and Configuration

As a part of this analysis, NICRP is prepared to submit a proposal for the development and maintenance of a State of Nevada early childhood database. NICRP will function as a database administrator for this project and will collaborate with the National Supercomputing Center for Energy and Environment (NSCEE).

The National Supercomputing Center for Energy and the Environment (NSCEE) was established in 1989 by an act of Congress of the United States of America and is located on the University of Las Vegas, Nevada campus. The Center is a full-service supercomputer facility with on-site and off-site user training and national network accessibility. NSCEE's primary mission is to provide high-performance computing and networking resources for research and development programs requiring collaboration at the state, national and international levels. NSCEE has had experience with supporting more than two hundred national and international projects, including provision of services to the Department of Energy, Nuclear Security Administration, and the Environmental Protection Agency.

The proposed development of the database will occur in two stages, a development stage and a pilot stage.

Stage I: Database Development

Server Acquisition and Security

NICRP will acquire a separate database server for the storage of early childhood data. MySQL database management system will be used to manage the data that is housed on the server. The server will be dedicated to the Nevada early childhood database (i.e., no other data will be housed on this server). The server will be housed at the NSCEE offices, which offer advanced on-ground and cyber security including:

- Full-time Network Security Administrator
- Cyber Security Program Plan (CSPP) approved by DOE's National Nuclear Security Administration (NNSA)
- Multiple firewalls and intrusion detection systems
- 24-hour facility access and monitoring system fostered by NNSA, Uninterruptable Power Supply (UPS)

- off-campus Disaster Recovery (DR) site
- key personnel hold NNSA clearance badges

Database Construction and Communication

The communication with the database and processing of user queries will be handled by a separate frontend server, which will run on NSCEE’s VMware server. The VMware server is a “virtual” system running on a separate server. The separation of the web server (i.e., the end-user queries) and the data warehouse portions of this database would help provide a higher level of system security. The actual data server on which data is stored would not be directly connected to the Internet and would only be accessible to end-users through the virtual frontend server. Because there will be no personally identifiable information contained in any of the datasets, each dataset will be treated separately. As part of the process of loading datasets into the database, a description of each data element would be added to a special table (data dictionary), which will be maintained by NICRP. The functioning flow of the proposed database is depicted in Figure 4. NICRP will be responsible to formatting, de-identifying (if necessary), and cleaning the data into a format necessary for upload. The data will be uploaded and maintained on the server by NSCEE staff. Original copies of raw data will be backed up and stored securely at NSCEE’s offices and copies of data will be uploaded onto the database server. This will ensure the maintained availability of data in case of data corruption or loss.

Web Interface and Query Development

After the acquisition of the server and while the data is being acquired, a web-based interface will be developed by NICRP. The web interface will be built by NSCEE and maintained by NICRP. The website for the database through which the end-user will be able to query the database will be built and maintained by NICRP with NSCEE providing website maintenance support.

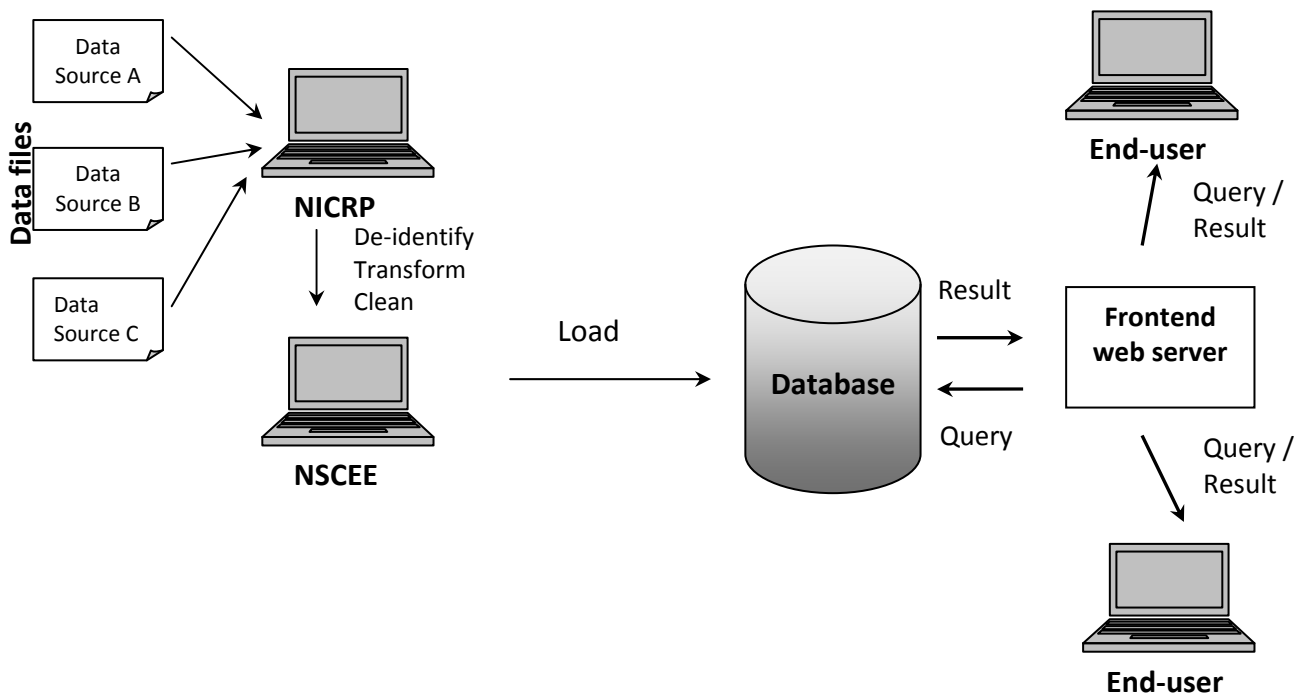
Initially, queries of the database will be available in two formats. One of the query formats available to the end-user will contain a data dictionary by the frontend server to dynamically generate query forms that the end user will use to create data queries. This option is similar to a query using pull-down menus of available variables.

The second query option that will be available to the end-user will consist of “canned” queries. These queries will be predetermined by NICRP based on the available data and will be made available to end-users on the website. Other formats may become available at a later time.

Database Testing and Timeline

Prior to being released to the public, the database will undergo an extensive testing phase administered by NICRP and NSCEE staff. The expected timeline for the construction of the database components, compilation of data, and testing is approximately one year. It is expected that most of that time will be devoted to data acquisition and agreements.

Figure 4: Proposed Nevada Early Childhood Database



Stage II: Pilot Phase

Website Release to Key Stakeholders

Prior to full release to the public, the database website will be released to the key stakeholders involved in the project for use and further testing. Surveys and focus groups will be administered to collect feedback about the ease of use of the database, the improvements that need to be made to the database, information that should be included in the database, and common (“canned”) queries that may need to be added to the database. Once this information is gathered, NICRP will add the suggested modifications to the website. Along with a continuous updating process of the data as it is received by NICRP.

Public Release and Assessment

After the changes suggested by the key stakeholder group have been implemented, the database website will be released to the public. Every end-user of the database will be given an opportunity to provide feedback via a survey built into the website. Survey results will be analyzed by NICRP on a quarterly basis and salient suggestions or changes will be brought to database stakeholders for consideration. During this phase, other sections of the database website may continue to be developed based on the feedback provided by website users.

A proposed timeline for each component of the project is included in Table 8 below.

2. Acquisition of Datasets

The acquisition of datasets for inclusion in the data warehouse will be a continual process and, perhaps, the most time consuming component of the data warehouse construction. The first step in the acquisition of data sets will be the identification of data collecting and originating agencies. Due to the duplicative nature of early childhood data that is currently being reported, it is important to establish communication with the source of the data. As a second step of the data acquisition process, NICRP will contact all agencies who currently hold raw data eligible for inclusion into the database. Necessary data sharing agreements will be established among NICRP, the State of Nevada and other agencies providing data for inclusion in the database. NICRP anticipates that most of the data will have been de-identified before transfer from the originating agency. The data that contains identifiers will be de-identified by NICRP before it is uploaded into the server.

The data that will be obtained by NICRP will be from the following categories:

- Federal Data (e.g., Maternal and Child Health Bureau)
- State Data (e.g., Nevada State Health and Human Services)
- Local Data (Kindergarten Health Survey collected annually by NICRP)
- Private Organizations Original Data (e.g., Annie E. Casey Foundation)

3. Inclusion of Related Materials

In addition to offering a query option on the database website, NICRP recommends that other features be available to end-users. One of these is a resource library with links to resources such as reports and factsheets from state, federal, and local data or programs that may be relevant for the purposes of grant writing, policy research, needs assessment, or other research. Another feature of the database recommended by NICRP is the intermediary role of the web interface to communicate with large federal and state databases that may be time-consuming or cumbersome to navigate. The intermediary function of the database is depicted in Figure 3. This function will allow the end-user to query large databases in a more time-effective manner and to access Nevada-specific information directly from the Nevada early childhood database website, as opposed to spending extra time in the search for state-specific data.

Depending on the availability and the originating agencies' willingness to share their original work, reports from Nevada and federal agencies will be available online as additional resources for database users. For example, the Children's Cabinet puts out a demographic report on the childcare in the State of Nevada. This report is available in printed format and on the organization's website, but may not be widely known to researchers working in the field of early childhood. Offering such reports on the early childhood database website would aid end-users in finding appropriate information and may help promote the websites of local agencies.

4. Estimated Cost and Timeline for Database Development

NICRP estimates that a comprehensive early childhood database can be compiled, evaluated, and released for public in approximately two years.

Table 8: Estimated Timeline for Database Development

YEAR 1 (Database Development)												
Month	1	2	3	4	5	6	7	8	9	10	11	12
Task												
Data Acquisition												
Server Acquisition and Security												
Database Construction and Communication												
Web Interface and Query Development												
Additional Database Features												
Database Testing and Fine-tuning												
YEAR 2 (Pilot Phase and Release)												
Month	1	2	3	4	5	6	7	8	9	10	11	12
Task												
Data Acquisition												
Website Release and Testing by Stakeholders Only												
Website Changes Based on Stakeholder Feedback												
Public Release												
Continual Assessment and Updating												

Estimated Budget for Database

Below is an estimated budget for the recommended database for the first two years. Costs in year one will likely be much higher than subsequent years to account for equipment, technical and development costs associated with creating the database. All costs provided are estimates only from the National Super Computing Center (Computer/Technical costs) and the NICRP (database development). Additional costs and/or fees may be applicable.

Task	Estimated Cost	
	Year One	Year Two
Computer/Technical Services	\$22,000	\$10,000
Includes: Server Acquisition Server Housing Server Maintenance Data Upload VMware “virtual” server use Web-based user interface design Intermediary function development		
Database Development Services	\$45,000	\$35,000
Includes: Data acquisition Data de-identification and clean-up Data conversion to Correct Format Database Evaluation Database Maintenance Related Materials and Supplies		
Totals	Year One	Year Two
	\$67,000	\$45,000

NOTE: All costs associated with this project are presented here as estimates only. Estimates do not include administrative fees/indirect costs

REFERENCES

1. U.S. Census Bureau (2000). State and County Quick Facts. Retrieved April 2009 from <http://quickfacts.census.gov/qfd/states/32000.html>
2. State of Nevada Demographer (2009). Nevada Census 2000. Retrieved from http://www.nsbdc.org/what/data_statistics/demographer/nv_census_2000/
3. State of Nevada Demographer (2009). Nevada's Age, Sex, Race and Hispanic Origin Estimates for 2005. Retrieved from http://www.nsbdc.org/what/data_statistics/demographer/pubs/ashro/
4. Rural Assistance Center (2009). Frontier Areas, Counties, and Zip Codes. Retrieved May 2006 from http://www.raconline.org/info_guides/frontier/
5. U.S. Census Bureau (2007). State and County Quick Facts. Retrieved April 2009 from <http://quickfacts.census.gov/qfd/states/32000.html>
6. Children's Advocacy Alliance (2008). 2008 Nevada Children's Report Card.
7. Han, J. & Kamber, M. (2001). Data Mining: Concepts and Techniques. Academic Press: A Harcourt Science and Technology Company, San Diego, CA.
8. Bartlett, K. & Zimanyi, L. (n.d.) Early Childhood Indicators. The Consultative Group on Early Childhood Care and Development
9. Department of Health and Human Services (2009). Early Childhood Comprehensive Systems Initiative: Component Areas. Retrieved April 2009 from <http://www.state-eccs.org/componentareas/index.htm>
10. Ibid 7
11. Campos-Outcalt, D. (2004). How does HIPAA affect public health reporting? *The Journal of Family Practice*, 53 (9), 701-704.
12. Health Insurance Portability and Accountability Act (HIPAA). Fed. Regist. 2000; (codified at 45 C.F.R. § 164.502-514)
13. Klein, A. (2008). New rules on school privacy law proposed. *Education Week*, 27 (31), 22.

APPENDIX A: CONTACT INFORMATION FOR EARLY CHILDHOOD DATA ORGANIZATIONS

Organization Acronym	Organization Name	Organization Description	Storage & Dissemination	Contact & Website
ACF-USDHHS	Administration for Children and Families - US Department of Health and Human Services	The Children's Bureau provides State and national data on adoption and foster care, child abuse and neglect, and child welfare. The Children's Bureau also funds research in collaboration with other organizations.	Case-level information on all children is collected. Reports are published by ACF and stored on the organization's webpage in PDF format.	Administration for Children and Families 370 L'Enfant Promenade, S.W. Washington, D.C. 20201 http://www.acf.hhs.gov/
CB	U.S. Census Bureau	The U.S. Census Bureau is a government agency that gathers demographic and economic data. It is part of the U.S. Department of Commerce.	Conducts the U.S. Census every 10 years.	U.S. Census Bureau 4600 Silver Hill Road Washington, DC 20233 301-763-2422 http://www.census.gov/
CDC	Centers for Disease Control and Prevention	The CDC is a U.S. agency that works to protect public health by providing information to enhance health decisions, and promotes health through partnerships with state health departments and other organizations.	These data are provided through contracts between CDC's NCHS and vital registration systems operated in various jurisdictions legally responsible for the registration of vital events.	Centers for Disease Control and Prevention 1600 Clifton Road Atlanta, GA 30333 800-CDC-INFO (800-232-4636) cdcinfo@cdc.gov http://www.cdc.gov/
CDF	Children's Defense Fund	The Children's Defense Fund (CDF) is a non-profit child advocacy organization that advocates policies and programs for children. The CDF is supported by grants and individual donations.	CDF analyzes and disseminates Census data as a Census Information Center	CDF 25 E Street NW Washington, D.C. 20001 800-233-1200 cdinfo@childrensdefense.org http://www.childrensdefense.org

Organization Acronym	Organization Name	Organization Description	Storage & Dissemination	Contact & Website
CMMS	Centers for Medicare & Medicaid Services	CMMS is a U.S. federal agency which administers Medicare, Medicaid, and the State Children's Health Insurance Program.		Centers for Medicare & Medicaid Services 7500 Security Boulevard Baltimore, MD 21244 877-267-2323 http://www.cms.hhs.gov/
DAC	Data Accountability Center	DAC was funded in October 2007 by the Office of Special Education Programs (OSEP), U.S. Department of Education to provide information and TA to improve the quality of all state-reported data required by the IDEA.		DAC/LSU Health Sciences / Human Development Center 1900 Gravier St., Rm 823 (8B9) New Orleans, LA 70112 https://www.ideadata.org/
DHHS	(U.S.) Department of Health and Human Services	The Department of Health and Human Services (HHS) is the United States government's principal agency for protecting the health of all Americans.		
KC	Kids Count	Kids Count is a project of the Annie E. Casey Foundation. The project is a national and state-by-state effort to track the status of children in the United States.	Most of the data is collected from the Nevada Kids Count project (Center for Business and Economic Research, UNLV). Nevada Kids Count collects both primary and secondary data. Data is available on the Kids Count website in state fact sheets.	The Annie E. Casey Foundation 701 St. Paul Street Baltimore, MD 21202 410-547-6600 webmail@aecf.org http://www.kidscount.org/

Organization Acronym	Organization Name	Organization Description	Storage & Dissemination	Contact & Website
MCHB-HRSA	Maternal and Child Health Bureau	The Maternal and Child Health Bureau is a part of the Health Resources and Services Administration (HRSA), of the United States Department of Health and Human Services that submit annual reports with statistics on population health variables.	Data is obtained from grant-based research efforts and available in report form.	Parklawn Bldg Rm. 18-05 5600 Fishers Lane, Rockville, MD 20857 http://mchb.hrsa.gov/
MSIS - CMS	Medicaid Statistical Information System	Since the implementation of the Balanced Budget Act of 1997, States have been submitting eligibility and claims program data to CMS through the Medicaid Statistical Information System (MSIS).		Contact: Bill Holland Phone 410-786-6443 email:msis@cms.hhs.gov http://msis.cms.hhs.gov/
NCES	National Center for Education Statistics	The National Center for Education Statistics (NCES) is the primary federal entity for collecting and analyzing data related to education.	Assessments on various subjects are provided for the nation's students and are available by state.	1990 K Street, NW Washington, DC 20006 202 502-7300 http://nces.ed.gov/
NDE	Nevada Department of Education		Collects information for Nevada Annual Reports of Accountability	700 East Fifth Street Carson City, NV 89701-5096 775-687-9200 http://www.nevadareportcard.com/
NSHD	Nevada State Health Division	The Nevada State Health Division provides information and resources to all Nevadans and visitors on public health.	Yearly reports of health data are compiled and available on the NSHD website in PDF format.	4150 Technology Way Carson City, Nevada 89706 775-684-4200 jflamm@health.nv.gov http://health.nv.gov/

Organization Acronym	Organization Name	Organization Description	Storage & Dissemination	Contact & Website
NDHHS	Nevada Department of Health and Human Services	NDHHS contains interactive databases that provide information on a range of variables and ages	Data is obtained from public surveys or through local reporting agencies. Data is stored in an interactive database on the NDHHS Interactive Databases System.	4150 Technology Way Carson City, NV 89706 Alicia Hansen - Chief Biostatistician ahansen@health.nv.gov 775-684-4161 http://health.nv.gov/NIHDS.htm
SND	State of Nevada Demographer	SND is contained within the Nevada Small Business Development Center at UNR. Conducts the State of Nevada census. Most of the information reported is secondary US Census Bureau data from the most recent census. Some current projections are reported.	Reports (profiles) from the Nevada Census are provided on a range of state demographics based on the census information.	http://nsbdc.org/what/data_statistics/demographer/nv_census_2000/