**CANCER AND BIRTH DEFECTS SURVEILLANCE SYSTEM
FOR COMMUNITIES AROUND THE SAVANNAH RIVER SITE
PHASE II - BIRTH DEFECTS**

TECHNICAL PROGRESS REPORT - YEAR 01

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**SRRHIS BIRTH DEFECTS REGISTRY TECHNICAL PROGRESS REPORT
YEAR 01**

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Savannah River Region Health Information System Birth Defects Registry

Technical Progress Report for Year 01

I. Summary

The Savannah River Region Health Information System Birth Defects Registry (SRRHIS-BDR) began on September 30, 1994, when the U.S. Department of Energy grant was awarded. As with the SRRHIS Cancer Registry, surveillance of the 12 Georgia counties was subcontracted to Emory University School of Public Health. Collaborative efforts between the Medical University of South Carolina (MUSC) and Emory University staffs have been characterized by warm relationships and commitment to developing a state of the art registry.

It has been quite an active and productive year. As a result of early planning efforts, we were able to actually activate the data collection. As of the end of September 1995, partial data from the 1994 birth cohort and up-to-date data for the 1995 birth cohort had been collected on the South Carolina side. The Georgia Staff started later and have not yet caught up to the 1994 level. South Carolina was able to start earlier because they were fortunate to quickly recruit an abstractor. Also, by the end of the first year, an innovative automated data entry system for laptop computers was developed by the computer staff to facilitate and improve data collection.

By early spring of 1995, a majority of the hospitals in the South Carolina catchment area had volunteered full cooperation with the Registry. The three prominent clinical geneticists in South Carolina, Dr. Roger Stevenson at the Greenwood Clinic, Dr. Shashidar Pai at MUSC, and Dr. Robert Best at the Richland Memorial Hospital, were contacted and asked to serve as consultants to the Registry. The Center for Disease Control representative to the South Carolina Bureau of Maternal and Child Health, Dr. William Sappenfield, and the head of the South Carolina Office of Vital Statistics, Mr. Murray Hudson, have been informed of and have endorsed the Registry.

Steps were also taken in year 01 to make the SRRHIS residents aware of the Birth Defect Registry being started. A large number of community contacts were made in anticipation of the visits that would have to be made with the individual hospitals to seek their voluntary collaboration. As with the Cancer Registry, it was imperative that all the SRRHIS-area hospitals participate in the Registry. The experience with the Cancer Registry had been one of tentative acceptance at first, followed by more or less warm acceptance after several years of working and sharing information with

them. This experience made it much easier to anticipate questions and to ease concerns about confidentiality of patient records.

In the next year, more effort will be directed toward community awareness of the registry and toward developing methods for information dissemination. Participation by the Vital Statistics Office of the South Carolina Department of Health and Environmental Control (DHEC) will be solicited for matching with the birth and death certificates to identify any missed cases. Cooperation by DHEC will also be helpful in allaying possible apprehension by some remaining hospital administrations regarding the protection of patient and hospital confidentiality.

Further, in year 02, a great deal of attention will be given to designing the quality control system. This will assure overall quality control, and assist with maintaining standardization between the Georgia and South Carolina components. The following report details the specific activities completed by the South Carolina SRRHIS-BDR staff. The report is divided into three sections: planning, implementation, and information dissemination activities. The progress report on the activities by the Georgia staff is provided in Appendix A.

II. Planning

Planning of the SRRHIS-BDR began in 1992. From the onset, the SRRHIS-BDR was designed to be compatible with the Metropolitan Atlanta Congenital Defects Program (MACDP), of the Centers for Disease Control and Prevention (CDC). This was done for two reasons. First, MACDP is a well-established and respected active surveillance system which has been collecting birth defects data for 25 years. Second, for the SRRHIS-BDR program to be useful, it is imperative that it be comparable to data from established registries, especially with MACDP since most other registries have been modeled after it as well. Therefore, in every aspect of the surveillance, SRRHIS staff consulted and continues to consult with the MACDP staff, headed by Mr. Larry Edmonds.

Once the BDR staff from Emory University was identified, monthly meetings and teleconferences were convened among the three groups (MUSC, Emory and CDC) to discuss the data collection methods, database maintenance system, operation and administrative issues. Throughout the planning meetings, emphasis has been on the standardization of methods used by MUSC and Emory. Feasibility of collecting data retrospectively as well as collecting prenatal diagnosis data has been discussed at length. Quality control methods are being planned. They include a process wherein the

South Carolina abstractor will reabstract cases from Georgia hospitals and vice versa. If feasible, a CDC abstractor will be invited to reabstract in both South Carolina and Georgia. The results of reabstractions will be compared, and a thorough discussion of identified differences will assist in assuring a high level of standardization.

III. Implementation

Dr. John Dunbar, Principal Investigator, and Dr. Yuko Palesch, Project Coordinator, visited all the hospitals in the South Carolina SRRHIS catchment area, as well as selected peripheral area hospitals (i.e., Self Memorial Hospital in Greenwood and Richland Memorial Hospital in Columbia) because many high risk deliveries from the SRRHIS counties are referred to them. With the exception of two hospitals in the Tricounty area (Roper and East Cooper Hospitals), all hospitals have signed a letter of agreement, allowing the SRRHIS-BDR to abstract pertinent information from their medical charts and log books. All SRRHIS area hospitals have provided full cooperation. Discussions with two Charleston area hospitals are continuing.

An abstractor, Julita Schwarz, was hired in early March 1995. Fortunately, her background in medicine, specifically in pediatrics, has complemented her training. She and the Georgia abstractors received hands-on training by the CDC staff in April in Atlanta. Dr. Schwarz also had an informal training earlier in March at CDC so that she could start the data collection almost immediately. Upon completion of training, Dr. Schwarz developed the abstractor's manual by adapting the MACDP Operation Manual to SRRHIS. (See Appendix B.)

Dr. Schwarz initiated data collection using the case abstraction forms which the MACDP staff uses. She has visited the hospitals in all the ten counties in SRRHIS at least once. She has also begun abstracting records at MUSC hospital and Trident Regional Medical Center in the Tricounty area. She has screened newborns through September 1995 at these hospitals. She also began screening the 1994 births in August 1995. A summary of cases and pending cases found to date is provided in Appendix C.

In March 1995, a programmer, Mr. Wenle Zhao, began developing an automated data collection system using FoxPro software. In July, we presented the system to the Emory and CDC staff. It was well-received, and they provided good comments to improve the system. Currently, Mr. Zhao and a part-time programmer, Mr. Richard Daehler-Wilking, are refining the system and updating the user's manual. The system will be downloaded onto

a laptop computer which Dr. Schwarz will use instead of the paper form. It contains some internal validation of data entered and is programmed such that confidentiality is almost perfectly ensured. The hard copy format of reporting of data is duplicated in the computer data entry system. A hard copy of the data collection forms and the User's Guide for the systems are attached in Appendix D.

IV. Information Dissemination

Community activities have been extensive throughout the year. The SRRHIS-BDR, as well as the Cancer Registry, has been discussed on radio and television interviews and has received attention in the local print media. The Hilton Head and the Augusta newspapers printed editorials supporting the restoration of 1996 funds to the State Grant program, which was deleted by the U.S. House of Representatives from the DOE-ESH budget in the summer of 1995. This editorial activity is an expression of the respect felt widely for SRRHIS by the Savannah area citizens. In turn, the program is widely known because Dr. Dunbar and his staff have spent so much effort in educating the residents about the information system being developed for them. Many civic clubs, newspapers, and radio/TV interviewers are awaiting the coming of the three years' worth of Cancer Registry data expected to be published by SRRHIS early in 1996. Tabulations of birth defects incidence rates will come later, but the public continues to be reminded that the birth defects surveillance activity has been added. Judging from audience responses, the SRRHIS-BDR is also becoming well-known and respected.

Dr. Palesch presented the SRRHIS-BDR at a conference in Munich, Germany, in late November 1994. The trip was paid by the German organizers and not by the DOE grant. The purpose of the conference was to discuss the incidence of birth defects in Bavaria region following the Chernobyl nuclear accident, and to evaluate the need and usefulness for a birth defects registry in the future. For the latter, the conference organizers were interested in active methods of surveillance in other countries, namely in the U.S. and Hungary. The differences between an active and passive surveillance systems prompted some discussion by the audience.

As a means to promote active surveillance system, a technical report of birth defects incidence in South Carolina was published. (See Appendix E.) The report utilized data from the birth certificate files from the Office of Vital Statistics of DHEC. For comparison, incidence data from the MACDP and the North Carolina Birth Defects Surveillance were included. It is emphasized that the passive system of birth defects surveillance results in a serious underestimation of true incidence, a defect which the active registry will correct.

**CANCER AND BIRTH DEFECTS SURVEILLANCE SYSTEM FOR COMMUNITIES
AROUND THE SAVANNAH RIVER SITE
PHASE II - BIRTH DEFECTS**

Technical Progress Report Year 01

APPENDICES

APPENDIX A

**Savannah River Region Health Information System Birth Defects
Registry**

Georgia Section - Emory University

ANNUAL PROGRESS REPORT - YEAR ONE

October 1995

Savannah River Region Health Information System
Birth Defects Registry
Georgia Section - Emory University

ANNUAL PROGRESS REPORT - YEAR ONE

During the first year of the Savannah River Region Health Information System (SRRHIS) planning and implementation of a population-based birth defects registry in 12 Georgia counties was initiated. The goal of the project was to develop a quality birth defects registry modelled after the Metropolitan Atlanta Congenital Defects Project (MACDP) conducted by the Centers for Disease Control and Prevention (CDC) in the 5 central counties of metropolitan Atlanta since Oct. 1967. Although many of the requisite activities are still under development, the initial steps have begun. The following report summarizes the accomplishments of the SRRHIS birth defects registry in Georgia during the first year of operation. This report is divided into two phases: planning and operation.

I. Planning:

Initial planning for this project began in October, 1994. The planning activities have proceeded in three primary directions: (1) internal, organizational planning necessary to implementing this project, (2) developing collaborative relationships and a joint protocol with MUSC, and (3) developing collaborative relationships with the public health community in Georgia necessary to implement a birth defects registry in the Savannah River area. The following plans and documents were developed in each of these areas as follows:

(1) Internal Organizational Planning:

- Early in FY94-95, the internal organizational structure of the project was finalized. Dr. Liff was to act as principal investigator. As such he oversees the general operation of the project as it relates to the larger SRRHIS project. Additionally, as the same staff are used for data management of the cancer and birth defects registries, Dr. Liff supervises this component of the project. Dr. Drews-Botsch provides the direct scientific supervision of the project, the technical aspects of the registry, and coordinates contact with agencies external to Emory University (i.e., MUSC, the Department of Human Resources of Georgia, the Medical College of Georgia, and the hospitals within the study area). Dr. Salbert, of the Medical College of Georgia, provides specific technical expertise with diagnoses and assists Dr. Drews in collaborating with the local hospitals. Ms. Click provides day-to-day supervision of the implementation of the study including coordinating quality control.
- Vital statistics data were reviewed to identify the number of deliveries, deaths, and pediatric admissions to residents of the SRRHIS service area (both Georgia and South Carolina residents) at all Georgia facilities. Based on this list, hospitals with at least 2 deliveries per month were identified and contacted about participating in this project. Additionally, discussions were held with staff from MACDP about their assisting us with abstracting data on SRRHIS residents who are hospitalized in the metropolitan Atlanta area.
- A number of meetings and training sessions were held with MACDP staff at CDC to develop: a case definition, screening definitions, data collection protocols, and quality control procedures.
- A draft field quality control document was developed, and initial training and quality

control procedures were implemented.

(2) Developing collaborative relationships and a joint protocol with MUSC:

- Regular meetings and phone conversations have been held with MUSC to develop a standard protocol for data collection at the two sites.
- Following discussions with CDC, we have developed a standard protocol, case definition, screening procedures, and data collection procedures.
- MUSC is developing a computerized version of the data abstraction form for use by both the Georgia and the South Carolina sites. Following review of this form by Georgia investigators and study staff, this computerized abstraction form will be used by both the Georgia and South Carolina SRRHIS registries.
- We have developed a plan to conduct joint training of staff and quality control of staff to ensure that all data collection staff in the two arms of the registry are collecting data in a similar manner.

(3) Developing collaborative relationships with the public health community in Georgia:

- We held initial planning meetings with staff from the Epidemiology Section and the Child Health Section at the Department of Human Resources for the state of Georgia. Both groups were extremely supportive of our efforts and were interested in assisting us in developing this project. Additionally, we contacted and elicited support from all of the Health Officers for the areas served by this registry.
- We contacted the Vital Records Division for the state of Georgia and were able to negotiate access to state vital records to assist in case finding.
- A letter of support from the Georgia Department of Human Resources was obtained which authorizes Emory University to collect data for the SRRHIS birth defects registry under legislative authority. This permits the mandatory reporting statutes of Georgia to be invoked for SRRHIS, and relieves the hospitals of liability for providing information to us without getting individual patient consent.
- We developed a collaborative relationship, and subcontract, with Dr. Bonnie Salbert in the Department of Pediatrics at the Medical College of Georgia. Dr. Salbert has been instrumental in assisting us with identifying key clinical personnel in the study area and assisting us with the clinical aspects of the registry. Additionally, Dr. Salbert has been assisting us in contacting hospitals in the study area and eliciting their support.

II. Operations:

Operationally, the SRRHIS birth defects registry has received permission to collect data on residents of the described area from the majority of delivery hospitals and has begun collecting data on children born in 1995. This step was initiated as a result of the following actions:

- Field staff were hired in the Savannah and the Augusta areas. Both, Ms Vickie Cooke (Augusta) and Ms. Theresa Myers (Savannah) are Accredited Records Technicians who have worked for a number of years with hospitals in the two areas.

- As noted above, training sessions were held at CDC for all the staff (including investigators) in screening and data abstraction procedures. Subsequently a number of training exercises (such as dual coding of charts with defects) and review of staff work and procedures by the project coordinator to ensure that the two abstractors were collecting similar data.
- All of the hospitals in the area have been contacted about the project. Permission to conduct the project has been granted by six of the hospitals, and is pending IRB review in two others.
- Data collection has been completed on children born in the first half of 1995 at the 6 hospitals to which we have been permitted access. To date, 117 medical records have been reviewed, and 28 residents with birth defects have been identified.

APPENDIX B

Savannah River Region Health Information System

Birth Defects Abstractor's Manual

SAVANNAH RIVER REGION
HEALTH INFORMATION SYSTEM
(SRRHIS)

Birth Defects
ABTRACTOR'S MANUAL

SRRHIS BIRTH DEFECTS REGISTRY ABTRACTOR'S MANUAL

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I. Introduction

The Abstractor's Manual serves as a guideline for reporting birth defects cases in the Savannah River Region Health Information System (SRRHIS) Defined Geographic Area. The intent of the manual is to set standards for case finding mechanisms and define terminology. The Abstractor's Manual also sets acceptable standards for the individual abstractor.

II. Abstractor's Role

Although the primary emphasis of the birth defects abstractor's position is data collection, preliminary steps must take place to insure access to the hospital departments and medical records.

A positive, professional working relationship with appropriate hospital staff (i.e. Nurse Manager of Labor and Delivery, Nurse Manager of Neonatal/Pediatric Intensive Care Unit, Nursery), must be established and maintained. Displaying proper conduct, discretion, personal appearance and respect for the assigned work area and staff will ensure the high standards of the University and SRRHIS.

A. Responsibilities at the Home Office.

Scheduling visits to the reporting facilities is a primary responsibility of the field birth defects abstractor. However, scheduling must also include one day a week at the SRRHIS home office. An office day is essential to maintain the flow of data transfer to the work station and fulfill routine office procedure requirements. Requirements include completing and signing travel forms, responding to requests and messages, and informing administrative staff of a prearranged field work schedule. The field birth defects abstractor should never return to the field without providing a schedule to the Project Administrator and completing the appropriate travel forms. In addition, attending monthly team meetings is mandatory. Only the Project Administrator may excuse the abstractor from this meeting. The abstractor should always be prepared to report on activities and progress at the meeting.

As the majority of the "field" birth defect abstractor's time is spent in the field, a day at the home office is an important means of communication and organization.

B. Preparing for a Field Visit

Phone communication with the reporting facility's designated contact person to schedule a mutually agreeable date and time for a visit is the first step in preparing for a field case finding/abstracting visit. A pleasant accommodating attitude is essential for the success of the program.

Plan appropriately for travel time and overnight accommodations if a stay is required. Make sure the laptop computer and all accessory equipment is in proper working condition.

Arrive at the scheduled facility on time. Dress appropriately and always display SRRHIS identification on your person. Proper introductions should always take place. Accept the work area assigned to you courteously; adjust yourself to the space provided.

Be organized. Have all manuals, documents, forms, and supplies necessary for proper screening/abstracting available. If the visit is a return abstracting session, a printout of all cases in the facility's existing database should be available to avoid case duplication. Complete the SRRHIS Field Work Report for Birth Defects (Appendix B) for each visit, taking care to balance the number of cases screened in Log Books (# Patients Reviewed in Logs Labor/Del , Nursery), cases screened (# Med. Records Screened) with the number of cases abstracted (# Cases Abstracted) and the number of cases recorded as Non reportable List .

Always be prepared to explain the SRRHIS program and give a concise demonstration of the abstracting process on the laptop computer. If a situation or question arises that would be more appropriately handled by the Project Administrator or the Project Leader, refer the situation/question to the proper staff member.

Remember, the reporting facility's perception of SRRHIS is directly influenced by the abstractor's demeanor in the field.

III. Confidentiality

As a "field" birth defects abstractor, the abstractor will be working on a daily basis in facilities which are cooperating with SRRHIS voluntarily. The commitment to confidentiality must be demonstrated at all times in all participating facilities. Screening lists for case finding purposes,

October 31, 1995

database verification lists, and non reportable lists should be secured in locked areas while traveling, or away from the work area. Exposed documents could lead to a breach in confidentiality. The laptop computer must never be left open when unattended.

At times, the abstractor may also become aware of certain administrative decisions or interpersonal relationships at a reporting facility. To discuss these decisions or relationships with staff at another reporting facility is inappropriate, unacceptable, and unprofessional. Be extremely careful not to engage in conversation concerning specific patients, treatment modalities, or caseload at any individual reporting facility. Continually assure and demonstrate to all participating facilities SRRHIS's commitment to confidentiality.

IV. Determining Reportability

A. Reference Date

The date the a registry begins its data collection is known as its reference date. The SRRHIS reference date is January 1, 1990. Thus cases diagnosed as of this date forward, that meet the following criteria for reportability will be included in the SRRHIS BDR date base.

B. Reporting Area

As the SRRHIS is a population-based registry, only those children whose mother's place of residence at the time of birth is one of the 25 SRRHIS counties (Appendix C) at the time of diagnosis would be reported to the SRRHIS.

C. Case Definition

1. The mother's residence at the time of birth must be in the twenty five county SRRHIS area as determined by her hospital records or, if in question, by vital records.

2. The child must have a structural or genetic birth defect or other specific birth outcome that can adversely affect his or her health and development. (List of potential birth defects see Appendix D.)

3. The defect must be diagnosed or its signs and symptoms must be recognized within the first year of life.

4. A case must be abstracted by the child's sixth birthday.

5. The infant (fetus) must have a gestational age of at least 20 weeks or birth weight of at least 500 grams. Stillborn infants are included if they have a reportable birth defect.

6. The date of birth is on or after January 1, 1990.

V. Criteria for Exclusion from SRRHIS Birth Defects Registry

Diagnoses considered as normal variants or minor anomalies, and therefore, excluded from the SRRHIS Birth Defects Registry case file are listed in Appendix F. Diagnoses that may be normal variants or subjects to variable diagnoses are included in SRRHIS file only if associated with another reportable defect.

VI. Case finding

A. Sources of data

Sources of data at hospitals include labor and delivery logs, nursery logs, newborn intensive care logs, pediatric logs, pathology/autopsy logs, cytogenetic laboratory logs. Not all sources are available at each hospital. The medical record number of potential cases are identified through a reviewing of the various logs. This process is called case finding. At each source a Case Finding Control Form is maintained (Appendix O) that indicates which logs were reviewed, the dates the logs were received, and the time period involved.

Next, the Medical Record of possible cases are requested (see Appendix E for condition warranting chart review) and reviewed (both mother's medical record and child's medical record) to determine which of the potential cases actually meet the case definition. For stillbirth, the mother's chart is requested and reviewed. An abstract of the medical record then is completed for each reportable case. Unfortunately, pediatric hospitals do not always record the hospital of birth in their data bases. Because new case records from these hospitals may lack information about an infant's delivery, they will require an additional tracking process. If after reviewing of the medical record, a case is determined to be ineligible for inclusion in the Birth Defects Registry, the medical record number is crossed off the list and is shown as non-reportable.

In addition to the hospital sources, Certificates of Birth, Death, and Fetal Death that indicate a birth defect are reviewed and matched against cases listed in the registry.

Medical records then are requested from the reporting hospitals on those children not previously identified from other sources and, if the conditions reported meet the case definition, the information is abstracted for the registry.

If the nature of a birth defect diagnosed in the first year of life is more precisely diagnosed in the child's second or third year of life, and this information is contained in the chart at the time of our review, then the more precise diagnosis is used. The abstracts of cases identified from multiple sources are compared, merged, and added to the registry. Inconsistencies, differences and/or conflicting data are resolved before being entered into the registry.

B. Method of Case finding

1. Pull the appropriate SRRHIS Birth Defects Reporting Source folder for the facility you wish to visit.
2. Review the Reporting Source Summary Sheet for contact person(s) and location(s).
3. Visit each internal source at the location indicated (Nursery, Labor and Delivery, Intensive Care Unit, Department of Pathology...)
4. Review each internal source's appropriate log. Most logs will contain the child's name, medical record number, date of birth, and a space for comments and/or problems.

- Review the comments/problems space for any diagnosis that is not on the excludable list (Appendix F) and the date of birth to make sure it is on or after January 1, 1990. Enter the available information on the Case finding Log Sheet.

- In Labor and Delivery and Nursery review a space for infant birth weight, Apgar score and gestational age. Record on Case finding Log Sheet all cases with:

- a. Birth weight less than 2500 grams but above 500 grams,
- b. Gestational age less than 35 weeks, but above 20 weeks,
- c. Apgar score less than 7 in one minute or in five minutes.

Always enter the Medical Record Number or Date of Birth for each case recorded on the Case Finding Control Form.

VII. Diagnosis

All diagnoses on the reportable list (Appendix D) are to be abstracted. "Ruled out" diagnoses are abstracted if the diagnosis which was ruled out is a reportable condition and was established at a different source. The purpose of this procedure is to be able to remove the earlier diagnosis from the SRRHIS Birth Defects case file when multiple reports on a child are linked during case matching procedures.

The full medical chart is reviewed to determine if the child has one or more reportable or include able diagnosis. Reportable diagnoses are then abstracted into SRRHIS Birth Defects Case Report Form (Appendix P) for live birth and stillbirth.

For any condition abstracted, the chart is searched for the most appropriate sub-specialist, the highest level of confirmation, and the most precise description made.

For children seen at more than one hospital, make an abstract for each child at each hospital. After coding the abstracts should be matched to determine which diagnosis is the final. All conflict diagnoses should be resolved.

VIII. Variable Collected

Data collected on every SRRHIS case will include identification, demographic, and diagnostic information. When the data are not available, the abstractor will have to use state vital statistics to provide additional information.

A. General Instructions:

1. Record all information carefully so you can avoid errors.
2. Use acceptable abbreviations (listed in appendix K).
3. Make sure coded characters are lined up with the proper space. Do not write other text over spaces where codes are to be placed.
4. Always enter dates using six digits in month-day-year sequence. Insert a zero before any single digit number.
5. For infants who are adopted, refer to the adoption procedure (Appendix M) when completing case form. Although those infants must be included as cases, their anonymity must be carefully protected.

B. Case Recording Specific Instructions for Each Data Field

1. Abstractor should record their first, middle, and last initials.
2. Abstractor should record the date the information was abstracted.

3. Hospital of record:

The 6 digit code for the hospital from which the information on this form was abstracted should be entered by the abstractor. For listing of hospital codes, see Appendix L.

4. Patient name:

Enter the child's full name (last, first, middle) from the hospital record.

- If no name is specified, then enter "baby boy" or "baby girl."
- If sex is unspecified or ambiguous, then enter only the last name.
- For multiple birth infants who have not been given a first name yet, after entering the appropriate sex, designate the first born as "1," the second born as "2" and so on.
- If child is to be adopted for last name enter "adopted."

5. Mother's name:

Enter the mother's full name (last, first, maiden). Enclose the mother's maiden name in parentheses. If last name is unknown, code "UNK." If baby was adopted, then enter "ADOPTED."

6. Mother's birth date:

Enter the mother's birth date. If unknown, code "99-99-99."

7. Mother's Social Security number:

Enter the mother's Social Security number. If unknown, code "999-99-9999". If baby was adopted enter "888-88-8888".

8. Mother's racial or ethnic group:

The abstractor should check the race of the child's mother. If the mother's race is recorded as mixed (e.g. Afro-American, Spanish-American, Japanese-American), use the minority ethnic group as the race of the mother (i.e. Black, Hispanic, Asian).

9. Residence at birth (for determining the place of residence please see Appendix G and Appendix H):

Enter the mother's street address at the time of birth. If unknown, enter "UNK." If baby was adopted, enter "ADOPTED." (Note: record the street address on a separate piece of paper to give to the SA for determining the correct census tract. The address will not be entered into the computer file; it will be destroyed)

10. City:

Enter the mother's (natural mother if baby is adopted) city of residence. If unknown, enter "UNK."

11. County:

Enter the mother's (natural mother if baby is adopted) county of residence using the codes listed in Appendix J.

12. Zip code:

Enter the mother's (natural mother if baby is adopted) zip code. If unknown, code "99999."

13. Home phone:

Enter the mother's home phone number (area code and number). Do not enter area code 803. If unknown, code "999-9999." If baby was adopted, code "888-8888."

14. Marital status:

Enter the mother's marital status. If unknown, enter "UNK".

15. Education:

Enter the mother's education year. If unknown, enter "UNK".

16. Work Place:

Enter the mother's work place. If unknown, enter "UNK". If baby was adopted enter "Adopted".

17. Work phone number:

Enter the mother's work phone number. If unknown, enter "999-9999". If baby was adopted enter "888-8888"

18. Father's name:

Enter father's name (last, first, middle). If unknown, enter "UNK." If baby was adopted, enter "ADOPTED."

19. Father's birth date:
If unknown, code "99-99-99."

20. Father's SSN:
Enter the father's Social Security number. If unknown, enter "999-99-9999".

21. Father's racial or ethnic group:
The abstractor should check the race of the child's father. If the father's race is recorded as mixed (e.g. Afro-American, Spanish-American, Japanese-American), use the minority ethnic group as the race of the mother (i.e. Black, Hispanic, Asian).

22. Father's residence at birth: (for determining the place of residence please see Appendix G and Appendix H):
Enter the father's street address . If unknown, enter "UNK." If baby was adopted, enter "ADOPTED."

23. City:
Enter the father's city of residence. If unknown, enter "UNK."

24. County:
Enter the father's county of residence using the codes listed in Appendix J. If unknown, enter "UNK."

25. Zip code:
Enter the father's zip code. If unknown, code "99999."

26. Home phone:
Enter the father's home phone number (area code and number). If unknown, code "999-9999." If baby was adopted, code "888-8888."

27. Education:
Enter the father's education year. If unknown, enter "UNK".

28. Work Place:
Enter the father's work place. If unknown, enter "UNK". If baby was adopted enter "Adopted".

29. Work phone number:

Enter the father's work phone number. If unknown, enter "999-9999". If baby was adopted enter "888-8888"

30. Other contact:

Enter name (last, first, middle), address (street, city, county, zip code), and relation with the baby. If unknown, enter "UKN".

31. Date of birth:

Enter the complete date of birth of the case infant. Only valid calendar dates in numeric form (e.g. 02-12-89) are acceptable. The code "99-99-99" is invalid. A birth date must be known for the child to meet the case definition.

32. Baby's SSN:

Enter the baby's Social Security number. If unknown leave empty.

33. Sex:

Check the box (code) corresponding to the sex stated in the hospital record. If the sex is ambiguous, or if the biological sex determined by chromosome analysis differs from the assigned sex, code "#3 AMBIGUOUS," and record the difference in abstractor's note (please see Birth Defect Case Report Form Appendix P, page number 2).

34. Hospital of birth:

Use the 8-digit location code from Appendix L. If unknown, code Use the 8-digit location code from Appendix L. If unknown, code "9999." If a child is delivered outside a hospital (e.g., at home or in an ambulance), then record the hospital of first admission, the mother's chart number, and the infant's chart number.

35. Pediatrician:

Record the names (last, first, middle initial) of the first pediatrician who saw the infant after birth.

36. Obstetrician:

Record the name (last, first, middle initial) of obstetrician who admit the mother for delivery or saw her first after delivery.

37. Birth weight:

Record the birth weight either in pounds and ounces or in grams, but not both. Always round up 0.5 (ounces or grams) to the next whole integer. The pounds and ounces data will be converted to grams by the computer. Record the earliest documented weight, preferably from the delivery room. If unknown, code "9999" in grams; leave pounds and ounces blank.

38. Head circumference:

Record the infant's head circumference in centimeters or inches and indicate which measurement was used. If unknown, code "99.9".

39. Length:

Record the infant's length in centimeters or inches and indicate which measurement was used. If unknown, enter "99.9".

40. 1 minute and 5 minute Apgar scores:

Record the two digit Apgar scores from the hospital record.

41. Plurality:

Check the box (code) corresponding to the plurality of birth as stated in the hospital record.

42. Outcome of delivery:

Check the box (code) corresponding to the outcome of the delivery. Note that stillborn includes all non live births that meet the case definition. Spontaneous abortions are considered to be stillborn for the purpose of answering this question. For multiple births with multiple outcomes, explain the situation on abstractor's note of each case record.

43. Co-twin or co-triplet sex:

Record the sex of the other twin or triplets. If more than three infants were born, leave blank and list the sexes of the other infants under Abstractor's Note (see SRRHIS BD Case Report Form page 2).

44. Co-twin or triplet Concordance:

Record status of other twin. If the twins /triplet share some, but not all, of their defects, code 2/3 and record the discrepancies under Abstractor's Note (see SRRHIS BD Case Report Form page 2). If more than two/three infants were born, leave blank and record the defect status of the other infants.

45. Co-twin/ triplet delivery outcome (LB/SB):

Record birth status (live born/stillborn (LB/SB) of the twin/triplet of case infant. If more than three infants were born, leave blank and record the birth status of the other infants under Abstractor's Note (see SRRHIS BD Case Report Form page 2).

46. Gestational age by neonatal exam:

Record the most exact gestational age (rounded to the nearest whole number) available from a Dubowitz, Ballard, or another type of exam. If the infant had both a Dubowitz and a non-Dubowitz exam, always record the Dubowitz. If no neonatal examination is recorded on the chart, code "99." If the infant is described by a pediatrician as "term" (i.e., no exact gestational age), code "88."

47. Ultrasound date:

Indicate the date of the earliest ultrasound performed up through 28 weeks. If an ultrasound was performed after 28 weeks and it was not used as a prenatal diagnosis, then enter the date under PRESENT PREGNANCY INFORMATION, not here.

48. Ultrasound dating:

Enter the gestational age in weeks of the earliest ultrasound performed up through 28 weeks. If an ultrasound was performed after 28 weeks and it was not used as a prenatal PRESENT PREGNANCY INFORMATION.

49. Date of LMP:

Record the first day of last menstrual period (LMP). If only the month and year of the LMP are known, enter "99" for the day. If the entire date is unknown, enter "99-99-99."

50. Date of EDC:

Record the estimated date of confinement. If unknown, enter "99-99-99."

51. Expired:

Enter yes or no. If baby expired abstractor should enter information in field 52-56.

52 Place of death:

Use the 4-digit location code from attachment 3. If the child is still alive, leave blank. If EXPIRED is coded "1," this field must be completed. If place of death is unknown, enter "9999."

53. Autopsy:

Check the box indicating the autopsy status at the hospital where the infant died. If EXPIRED is coded "1," this field must be coded. If the child is not dead, leave blank.

54. Date:

If an autopsy was performed, indicate the date. If unknown, enter "99-99-99." If no autopsy was performed or the child is still alive, leave blank.

55. Place:

Use the 8-digit location code from appendix3. If no autopsy was performed, leave blank. If an autopsy was done but the place is unknown, enter "9999."

56. Autopsy result:

Enter autopsy result, if unknown enter "UKN".

57. Total number of previous pregnancies:

Use the digit zero before any number less than 10. Do not include the pregnancy being discussed in the case record. Include all pregnancies regardless of birth weight. Include all abortions, both spontaneous and induced, as well as all stillbirths. If unknown (i.e., no past obstetric history is available), code "99." Note that the total number of previous pregnancies does not necessarily have to equal the sum of births and abortions due to multiple births (e.g., twins).

58. Number of live births:

Include any live birth, regardless of birth weight. Use the digit zero before any number less than 10. Do not include the pregnancy being recorded. If unknown, code "99."

59. Number of stillbirths:

Use the digit zero before any number less than 10. Include all fetuses born dead of gestational age 20 weeks or greater. If unknown, code "99."

60. Number of induced abortions:

Use the digit zero before any number less than 10. If unknown, code "99."

61. Number of spontaneous abortions:

Use the digit zero before any number less than 10. Include all fetuses born dead of gestational age less than 20 weeks and weighing less than 500 grams. If unknown, code "99."

62. Number of unspecified-type abortions:

If the infant's mother has had previous abortions but the type was not specified, enter the number here. If unknown, code "9."

63. Prenatal DX test:

If evidence that a prenatal diagnostic test, such as amniocentesis or ultrasound was or was not performed, check the appropriate column. If no clear indication is available, check "NOT STATED." If ultrasound was used for a prenatal diagnosis, then indicate "1 DONE," but if it was performed after 28 weeks, do not complete ultrasound information. If ultrasound was used for dating purposes only, then record "2 NOT DONE" for this question.

If the PRENATAL DX TEST is marked "DONE," then all other fields regarding the test must be completed.

64. Type test:

Use the 2-digit codes in Appendix N to indicate the type of prenatal diagnostic test performed. Leave blank if no test was done.

65. Date:

Indicate the date the prenatal diagnostic testing was performed. If unknown, code "99-99-99." Leave blank if no test was done.

66. Hospitals of others admission:

This is to reflect additional hospital admissions. List the 8-digit code from Appendix L for the second hospital where the baby was admitted, readmitted, or transferred. If the only time the baby was hospitalized was at birth, leave blank.

Readmission/transfer:

Indicate whether the second hospital admission listed was for a readmission (including a first admission to a hospital other than the birth hospital) or a transfer. A readmission is defined as an infant who was previously hospitalized being discharged home and then subsequently admitted

to any hospital. A transfer is defined as an infant being transported directly from one hospital to another (without going home), regardless of whether the infant had ever been previously admitted to the latter hospital. If the infant was never readmitted/transferred, leave blank.

67. Second admission date:

Record the most recent date of the hospital of second admission. If unknown code "99-99-99." If no transfer or readmission occurred, leave blank.

68. Date of discharge:

Enter the date of discharge, if unknown, code "99-99-99."

69. Chart number:

Using right justification, record the infant's chart number at the hospital of others admission.

70. Prenatal complication section:

Record significant data about the present (index) pregnancy. This includes illnesses (acute or chronic) with dates and medications, drug, alcohol, or tobacco use, conditions or illnesses specific to pregnancy, and events leading up to an early delivery. To ensure proper interpretation, the abstractor should carefully examine the time and purpose of drugs administered around delivery. For example, pitocin given before delivery has important implications regarding induction or augmentation of labor; yet the same drug administered after delivery has no informative value worth abstracting. Make sure the most significant information (i.e., illness, drug usage) is recorded first.

71. Previous pregnancy and medical history:

Record the history for any previous pregnancies, including year, outcome, gestational age for abortions, birth weight, and sex. Make sure the most significant information (i.e., illness, drug usage, C-section, dilatation and curettage, toxemia) is recorded first. Record other medical conditions that were related to pregnancies.

72. Family history:

Record family history of any diseases. The abstractor should be certain that all references to family members are from the point of view of the index case and not the mother's. For example, when interpreting the mother's obstetric record, a reference to her husband or her father should be recorded (from the child's point of view) as father and maternal grandfather, respectively. The use of standard abbreviations such as MGF (maternal

grandfather), MGM (maternal grandmother), and PGGF (paternal great grandfather) is acceptable when recording data in this section. Make sure the most significant information is recorded first.

73. Postnatal section:

A. Record any information about postnatal complication. Enter a date, place where postnatal diagnostic procedure was done, specific result and outcome.

If no clear information is available enter "NOT STATED". Leave empty if there was no complication.

B. Record any information about postnatal diagnostic procedures. Enter a date, place, name of procedure, specific result. If no clear information is available enter "NOT STATED". Leave empty if there was no complication.

74. Physical examination section:

This field is use to record all CONSULTATION and physical examination done by specialist. Enter date, place, physician's last name, specialty name, and result. If no clear information is available enter "NOT STATED". Leave empty if there was no complication.

75. Birth defect section .

These spaces represent the most important part of the case record. Carefully reviewed the entire chart, including facesheet, history and physical examination discharge summary, physician's notes, and nurse's notes, autopsy reports, cardiac cateryzation reports, operative reports, laboratory and x-rays result, social services notes, and all consultation to get the most complete and specific diagnoses possible. Record 6-digit British Pediatric Association (BPA) codes modified by MADCAP (please see Appendix D). Enter each reportable diagnosis description on the right of each corresponding diagnosis code. Each diagnosis should be written on a separate line corresponding to a code. The only exeption to this rule would be if two or more defects have the same 6-digit code (e.g. epicanthal folds and exophthalmos sharing the 743.800 code). If the infant is diagnosed with a syndrome, record the name and code of the syndrome as well as the individual defects. Abbreviations are not to be used in the diagnosis selection except for these six listed below:

ASD - atrial septal defect,

bil - bilateral,

con - congenital,

PDA - patent ductus arteriosus

PFO - patent foramen ovale,
VSD - ventricular septal defect

Teaching hospitals present special problems because a child may have multiple diagnoses and physicians. Take the diagnosis of the most expert physician examined the child for each anatomic system (e.g., the cardiologist's diagnoses for cardiac anomalies are to be abstracted instead of the resident's diagnoses). Many times it is not clear who is the most expert physician. In these cases, abstract all defects, including discrepant diagnoses. Include other diagnoses mentioned only once in the chart that have not been specifically ruled out either by a more expert physical examination or a laboratory tests. For conditions where multiple diagnostic possibilities are listed (e.g., child with cyanosis having four different diagnoses), review the rest of the chart and abstract only those diagnoses which have not been nullified by physical exam or laboratory tests. If there is a question of whether the diagnosis is reportable, enter it for review in the office.

X.Limitation of Surveillance:

1. Some birth defects are not recognized at birth or do not require subsequent hospitalization. Such cases are not usually collected by SRRHIS Birth Defects Registry because the only evidence would be in private physicians records and hospital outpatient records.
2. Certain diagnoses, such as Turner's Syndrome, are not clinically evident before the age of six years and maybe under ascertained.
3. Miscarriages (i.e. spontaneous abortions before 20 weeks gestation and weighing less than 500 grams are not reported because they are excluded by case definition.
4. Some cases are missed because the information available (obstetric and nursery log, admission slips...) is inaccurate or incomplete.
5. A small percentage of all births do not occur in a hospital. Some of these children will have reportable conditions. The ones who die or are hospitalized during their first year of life will be reported, but the others may be missed.
6. Some children whose parents move after birth or are born in the SRRHIS surveillance area but are diagnosed outside that area will be missed.

JOB DESCRIPTION
FOR
TEMPORARY GRANT POSITION

I. Department Name: DBE - Savannah River Region Health Information System
Dept. No.: 25030 Funds No.: ED-14

II. Job Title: Birth Defects Field Abstractor Class Code: _____ Slot No.: _____
(Enter name of position) (For HRM Use)

III. Description of Position:

Maintains cooperative relations with area hospitals and pathological laboratories participating in the SRRHIS birth defects program in order to gain access to health records data for the purpose of screening for all congenital malformations and birth defects, identifying reportable cases and gleaning pertinent information from the acceptable records. Responsible for representing MUSC to the assigned hospitals in a dignified, perspicuous, professional manner, bearing in mind the high standards of the University and the SRRHIS.

IV. Specific Duties:

1. Establishes contacts with personnel in various units (i.e. well baby nurseries, neonatal intensive care nurseries, obstetrics, pediatrics and pathology) of SRRHIS Hospitals in order to have access to all possible sources of information to be utilized in case ascertainment; (Essential) 12%
2. Plans and implements visits to different units within each hospital according to the estimated case load to determine which form of patient tracking is most effective for case ascertainment in each unit and ensures completion of the assigned cases by the end of the year period; (Essential) 12%
3. Spends two to three weeks per year in overnight trips to participating rural SC hospitals. Makes logistical arrangements, contacts, and schedules as necessary; (Marginal) 5%
4. Develops and maintains a positive professional working relationship at the assigned hospitals with the appropriate administrative staff including but not limited to the following professionals: Medical Records Administrator, Assistant Administrator in charge of medical records, Nurse/Administrator in Well-Baby Nurseries, Neonatal Intensive Care Nurseries, Obstetrics, Pediatrics and Hospital Pathologists; (Essential) 10%

5. Collects and compiles data from hospitals on congenital malformations, and other birth defects diagnosed within the first year of life; (Essential) 45%
 - a. Screens hospital logbooks, daily discharges and disease indices in order to identify potential cases and determine which patients meet the criteria to be included as cases in the surveillance system;
 - b. Reviews medical records for diagnosis, maternal history, and demographic information and enters select information into a management system via a laptop computer;
 - c. Reviews the collected data on each case to ensure that all eligibility criteria are met; reviews all data entered into the field data entry system for accuracy and completeness; ensures all information is coded according to current methods; alerts professional staff of any unusual cases that are identified when abstracting records;
 - d. Keeps strict control over the confidential maintenance of case records and works with the SRRHIS staff in developing and maintaining quality control measures;
 - e. Alerts study personnel to logistical and other problems in the data collection process.
6. Follow-up birth and infant death certificate data from state vital records department on infants identified as potential cases following the same guidelines outlined previously. (Marginal) 5%
7. Assists in the coordination of files and records for data processing jobs relating to surveillance activities. Maintains working knowledge of data files; (Essential) 3%
8. Assists technical and statistical personnel in the preparation of reports, manuscripts, charts, and statistical tables; (Marginal) 3%
9. Attends staff meetings to a) obtain current information on SRRHIS news, policies, and procedures; and b) report on the progress of completing the assigned case load and on the status of SRRHIS relations with the individual hospitals; (Marginal) 3%
10. Cooperates with other staff within SRRHIS to achieve its objectives. (Essential) 2%

V. Required Minimum Education and Experience:

- Bachelor's or Associate degree with two years experience in related field.
- Proficiency in medical terminology, medical records procedures, birth defects epidemiologic surveillance and complex data collection requirements. Skill in development of data collection instruments, quality control procedures, and tracking systems training manuals. This position requires a self-motivated individual with the ability to tactfully interface with a wide range of health officials and hospital staff in developing, coordinating and applying the procedures involved in the collection of birth defects surveillance data.

Typical Physical Demands:

Requires prolonged standing or sitting; requires eye-hand coordination and manual dexterity; requires use of office equipment, such as computer terminals, telephones or copiers; visual ability sufficient to read and write correspondence and reports; hearing ability sufficient to hold conversations with other individuals both in person and over the telephone; speaking ability sufficient to communicate effectively with other individuals both over the phone and in person; freedom from mental disorders which would interfere with performance of duties as described. The individual filling this position must be able to drive, possess a valid South Carolina driver's license, and have their own transportation.

VI. Supervisor's signature:

Jamie A. Koenig

Date:

11-15-14

Dept. Head (or designee's) signature:

Shaulyn Edgmon

Date:

11/15/94

(please attach copy of grant which authorizes position)

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SAVANNAH RIVER REGION HEALTH INFORMATION SYSTEM FIELD WORK REPORT-BIRTH DEFECTS

[illegible]

APPENDIX C

PARTICIPANT REPORTING AREAS:

STATE	COUNTIES
Georgia	Bryan Bulloch Burke Chatham Columbia Effingham Evans Jefferson Jenkins McDuffie Richmond Screven
South Carolina	Aiken Allendale Bamberg Barnwell Beaufort Berkeley Charleston Colleton Dorchester Edgefield Hampton Jasper Orangeburg

This reporting area will provide population-based information for all counties within 50 miles of the Savannah River Site as well as those downstream to Beaufort and Savannah. In addition, selected more distant counties will serve as comparison areas.

Appendix D

BIRTH DEFECTS AND GENETIC DISEASES BRANCH 6-DIGIT CODE

For Reportable Congenital Anomalies

Based on the 1979 British Pediatric Association (BPA) Classification of Diseases and the World Health Organization's 1979 International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)

Code modifications developed by Birth Defects & Genetic Diseases Branch, National Center for Environmental Health, Centers for Disease Control and Prevention, Public Health Service, U.S. Department of Health and Human Services, Atlanta, Georgia 30333.

INDEX TO 6-DIGIT CODE

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Anencephalus and similar anomalies	740	D2
Spina bifida	741	D3
Other congenital anomalies of the brain and nervous system	742	D4-D5
Congenital anomalies of the eye	743	D6
Congenital anomalies of the ear, face and neck	744	D7-D8
Bulbus cordis anomalies and anomalies of cardiac septal closure	745	D9-D10
Other congenital anomalies of the heart	746	D11-D12
Other congenital anomalies of the circulatory system	747	D13-D15
Congenital anomalies of the respiratory system	748	D16-D17
Cleft palate and cleft lip	749	D18
Other congenital anomalies of the upper alimentary tract	750	D19-D20
Other congenital anomalies of the digestive system	751	D21-D23
Congenital anomalies of the genital organs	752	D24-D27
Congenital anomalies of the urinary system	753	D28-D30
Certain congenital musculoskeletal deformities	754	D30-D32
...head		
...spine		
...hips, legs, feet		
...chest		

INDEX (cont'd.)

	ICD-9 Code	Page
Other congenital anomalies of limbs	755	D32-D36
...polydactyly		
...syndactyly		
...reduction defects		
...other anomalies, upper limbs		
...other anomalies, lower limbs		
...other specified/unspecified		
Other musculoskeletal anomalies	756	D36-D41
...of skull and face bones (craniosynostosis)		
...of the spine and ribs		
...spina bifida occulta		
...chondrodystrophy		
...osteodystrophies		
...of the diaphragm		
...of the abdominal wall		
...other specified/unspecified		
Congenital anomalies of the Integument	757	D41-D43
...skin		
...hair, nails, other specified		
Chromosomal anomalies	758	D43-D46
Other specified and unspecified congenital anomalies	759	D46-D49
...spleen		
...adrenal gland		
...other endocrine		
...sinus inversus		
...conjoined twins		
...tuberous sclerosis		
...other hamartoses		
...multiple congenital anomalies		
...other specified anomalies and syndromes		
...unspecified congenital anomalies		

Explanation of 6-Digit code

6th Digit Code - Master

.000	Blank
.001	Left Only
.002	Right Only
.003	Unilateral Unspecified
.004	Bilateral
.005	
.006	

Explanation of 6-Digit code

6th Digit Code - Master

- .000 Blank
- .001 Left Only
- .002 Right Only
- .003 Unilateral Unspecified
- .004 Bilateral
- .005
- .006
- .007
- .008 Possible, Probable, Borderline, or Rule Out
- .009 Not Otherwise Specified (NOS)

The previously cited sixth digit added by the record abstractor to the BPA/CDC code modification is used for the following reasons:

- .001 Specify laterality if the location of the defect is known.
- .002
- .003 Specify if the defect is unilateral, when the specific location is unknown.
- .004 Specify that the defect is bilateral (i.e., on both sides).
- .005 Use in certain circumstances to more specifically
- .006 define a particular defect. For example, these codes may be
- .007 created to specify the location of a myelomeningocele in spina bifida as cervicothoracic, thoracolumbar, or lumbosacral (see 741.085, etc.)
- .008 Rarely use this code specification; it is available for defects that are specified as probable or possible from the hospital record - e.g., "probable PDA" = 747.008, "probable VSD" = 745.498, or a case of Down syndrome without cytogenetic verification. Medical records of cases with this defect code should be reviewed periodically to update the defect list with the most definitive diagnosis.
- .009 Indicate that the defect is "not otherwise specified" in any other part of the 6-digit code.

Notes:

An asterisk (*) beside a disease code indicates that the code was created by CDC. A pound symbol (#) beside a disease code indicates that the condition or defect is listed on the MACDP Exclusion List. A check beside a disease code indicates that an addition/revision was made since the last printing of the Procedure Manual. Use of the code should be according to the exclusion list criteria. The abbreviations NEC and NOS used in this code are defined as not elsewhere classified and as not otherwise specified, respectively.

CONGENITAL ANOMALIES

Anencephalus and Similar Anomalies

740.0	Anencephalus
740.000	Absence of brain
740.010	Acrania
740.020	Anencephaly
740.030	Hemianencephaly, hemiccephaly
740.080	Other
740.1	Craniorachischisis
740.100	Craniorachischisis
740.2	Iniencephaly
740.200	Closed iniencephaly
740.210	Open iniencephaly
740.290	Unspecified iniencephaly

741 Spina Bifida

- Includes:** Spina bifida aperta (open lesions)
 myelocele
 rachischisis
- Spina bifida cystica (closed lesions)
 meningocele
 meningomyelocele
 myelomeningocele
- Excludes:** Spina bifida occulta (see 756.100)
 craniorachischisis (see 740.100)

741.0 Spina Bifida with Hydrocephalus

- 741.000 Spina bifida aperta, any site, with hydrocephalus
- 741.010 Spina bifida cystica, any site, with hydrocephalus
 and Arnold-Chiari malformation
 Arnold-Chiari malformation, NOS
- 741.020 Spina bifida cystica, any site, with stenosed
 aqueduct of Sylvius
- 741.030 Spina bifida cystica, cervical, with unspecified hydrocephalus
 Spina bifida cystica, cervical, with hydrocephalus but without
 mention of Arnold-Chiari malformation or Aqueduct stenosis
- 741.040 Spina bifida cystica, thoracic, with unspecified hydrocephalus,
 no mention of Arnold-Chiari
- 741.050 Spina bifida cystica, lumbar, with unspecified hydrocephalus,
 no mention of Arnold-Chiari
- 741.060 Spina bifida cystica, sacral, with unspecified hydrocephalus,
 no mention of Arnold-Chiari
- 741.070 Spina bifida of any site with hydrocephalus of late onset
- 741.080 Other spina bifida, meningocele of specified site with hydrocephalus
- 741.085 Spina bifida, meningocele, cervicothoracic, with hydrocephalus
- 741.086 Spina bifida, meningocele thoracolumbar, with hydrocephalus
- 741.087 Spina bifida, meningocele, lumbosacral with hydrocephalus
- 741.090 Spina bifida of any unspecified type with hydrocephalus

742	Other Congenital Anomalies of Nervous System
742.0	Encephalocele
742.000	Occipital encephalocele
742.080	Other encephalocele of specified site Includes: midline defects
742.085	Frontal encephalocele
742.086	Parietal encephalocele
742.090	Unspecified encephalocele
742.1	Microcephalus
742.100	Microcephalus
742.2	Reduction deformities of brain
742.200	Anomalies of cerebrum
742.210	Anomalies of corpus callosum
742.220	Anomalies of hypothalamus
742.230	Anomalies of cerebellum
742.240	Agyria and lissencephaly
742.250	Microgyria, polymicrogyria
742.260	Holoprosencephaly
742.270	Arrhinencephaly
742.280	Other specified reduction defect of brain
742.290	Unspecified reduction defect of brain
742.3	Congenital hydrocephalus Excludes: hydrocephalus with any condition in 741.9 (use 741.0)
742.300	Anomalies of aqueduct of Sylvius
742.310	Atresia of foramina of Magendie and Luschka Dandy-Walker syndrome
742.320	Hydranencephaly
742.380	Other specified hydrocephaly Includes: communicating hydrocephaly
742.385	Hydrocephalus secondary to intraventricular hemorrhage (IVH) or CNS bleed
742.390	Unspecified hydrocephaly, NOS

742.4 Other specified anomalies of brain

- 742.400 Enlarged brain and/or head
 megalocephaly
 macrocephaly
- 742.410 Porencephaly
 Includes: porencephalic cysts
- 742.420 Cerebral cysts
- 742.480 Other specified anomalies of brain
 Includes: cortical atrophy
 cranial nerve defects
- 742.485 Ventricular cysts
 Excludes: arachnoid cysts
- 742.486 Small brain

742.5 Other specified anomalies of spinal cord
Excludes: syringomyelia (336.000)

- 742.500 Amyelia
- 742.510 Hypoplasia and dysplasia of spinal cord
 ateliomyelia
 myelodysplasia
- 742.520 Diastematomyelia
- 742.530 Other cauda equina anomalies
- 742.540 Hydromyelia
 Hydrorachis
- 742.580 Other specified anomalies of spinal cord and membranes
 Includes: congenital tethered cord

742.8 Other specified anomalies of nervous system
Excludes: congenital oculofacial paralysis
Moebius syndrome (use 352.600)

- 742.800 Jaw-winking syndrome
 Marcus Gunn syndrome
- 742.810 Familial dysautonomia
 Riley-Day syndrome
- 742.880 Other specified anomalies of nervous system

742.9 Unspecified anomalies of brain, spinal cord and nervous system

- 742.900 Brain, unspecified anomalies
- 742.910 Spinal cord, unspecified anomalies
- 742.990 Nervous system, unspecified anomalies

743	Congenital Anomalies of Eye
743.000	Anophthalmos
	agenesis of eye cryptophthalmos
743.100	Microphthalmos, small eyes
	aplasia of eye hypoplasia of eye
	dysplasia of eye rudimentary eye
743.2	Buphthalmos
743.200	Buphthalmos
	congenital glaucoma
	hydrophthalmos
743.210	Enlarged eye, NOS
743.220	Enlarged cornea
	keratoglobus
	congenital megalocornea
743.3	Congenital cataract and lens anomalies
743.300	Absence of lens
	congenital aphakia
743.310	Spherical lens
	Spherophakia
743.320	Cataract, NOS
743.325	Cataract, anterior polar
743.326	Cataract, other specified
743.330	Displaced lens
743.340	Coloboma of lens
743.380	Other specified lens anomalies
743.390	Unspecified lens anomalies
743.4	Coloboma and other anomalies of anterior segments
743.400	Corneal opacity
743.410	Other corneal anomalies
	Excludes: megalocornea (use 743.220)
743.420	Absence of iris
	aniridia
743.430	Coloboma of iris
743.440	Other anomalies of iris
	polycoria
	ectopic pupil
	Peter's anomaly
	Excludes: brushfield spots (use 743.800)
743.450	Blue sclera
743.480	Other specified colobomas and anomalies of anterior segments
	Rieger's anomaly
743.490	Unspecified colobomas and anomalies of anterior eye segments

744	Congenital Anomalies of Ear, Face, and Neck
744.0	Anomalies of ear causing impairment of hearing
744.000	Absence or stricture of auditory canal
744.010	Absence of auricle (pinna) absence of ear, NOS
744.020	Anomaly of middle ear fusion of ossicles
744.030	Anomaly of inner ear Includes: congenital anomaly of membranous labyrinth organ of Corti
744.090	Unspecified anomalies of ear with hearing impairment Includes: congenital deafness, NOS
744.1	Accessory auricle
744.100	Accessory auricle Polyotia
744.110	Preauricular appendage, tag, or lobule (in front of ear canal)
744.120	Other appendage, tag, or lobule include papillomas, ear tags
744.2	Other specified anomalies of ear
744.200	Macrotia (enlarged pinna)
744.210	Microtia (hypoplastic pinna and absence or stricture of external auditory meatus)
744.220	Bat ear
744.230	Other misshapen ear pointed ear elfin pixie-like lop ear cauliflower ear cleft in ear malformed ear absent or decreased cartilage
744.240	Misplaced ears
744.245	Low set ears
744.246	Posteriorly rotated ears
744.250	Absence or anomaly of eustachian tube
744.280-	Other specified anomalies of ear (see also 744.230) Excludes: Darwin's tubercle

- 744.3 Unspecified anomalies of ear**
- 744.300 Unspecified anomalies of ear
Congenital: ear (any part)
anomaly, deformity, NOS
- 744.4 Branchial cleft, cyst, or fistula; preauricular sinus**
- 744.400 Branchial cleft, sinus, fistula cyst, or pit
744.410 Preauricular sinus, cyst, or pit
744.480 Other branchial cleft anomalies
Includes: dermal sinus of head
744.500 Webbing of neck
Includes: pterygium colli
redundant neck skin folds
- 744.8 Other unspecified anomalies of face and neck**
- 744.800 Macrostomia (large mouth)
744.810 Microstomia (small mouth)
744.820 Macrocheilia (large lips)
744.830 Microcheilia (small lips)
744.880 Other specified anomalies of face/neck
- 744.9 Unspecified anomalies of face and neck**
- 744.900 Congenital anomaly of neck, NOS
Includes: short neck
744.910 Congenital anomaly of face, NOS
Abnormal facies

745	Bulbus Cordis Anomalies and Anomalies of Cardiac Septal Closure
745.0	Common truncus (see 747.200 for pseudotruncus)
745.000	Persistent truncus arteriosus absent septum between aorta and pulmonary artery
745.010	Aortic septal defect Includes: aortopulmonary window Excludes: <u>atrial</u> septal defect (use 745.590)
745.1	Transposition of great vessels
745.100	Transposition of great vessels, complete (no VSD)
745.110	Transposition of great vessels, incomplete (w/VSD) Taussig-Bing syndrome
745.120	Corrected transposition of great vessels, L-transposition, ventri in version Excludes: dextrocardia (use 746.800)
745.180	Other specified transposition of great vessels Includes: double outlet right ventricle
745.190	Unspecified transposition of great vessels
745.2	Tetralogy of Fallot
745.200	Fallot's tetralogy
745.210	Fallot's pentalogy Fallot's tetralogy plus ASD
745.3	Single ventricle
745.300	Single ventricle Common ventricle Cor triloculare biatriatum

- 745.4 Ventricular septal defect**
- 745.400 Roger's disease
 - 745.410 Eisenmenger's Syndrome
 - 745.420 Gerbode defect
 - 745.480 Other specified ventricular septal defect
 - 745.490 VSD (ventricular septal defect), NOS
Excludes: common atrioventricular canal type (use 745.620)
 - 745.498 Probable VSD
- 745.5 Ostium secundum type atrial septal defect**
- 745.500 Nonclosure of foramen ovale, NOS
Patent foramen ovale (PFO)
Always code if ≥ 2500 gm and ≥ 6 weeks of age
Excludes: $< 2,500$ gm regardless of presence of other defects
Includes: < 6 weeks of age at diagnosis only if another reportable defect is present.
 - 745.510 Ostium (septum) secundum defect
 - 745.520 Lutembacher's syndrome
 - 745.580 Other specified atrial septal defect
 - 745.590 ASD (atrial septal defect), NOS
Auricular septal defect, NOS
Partial foramen ovale
PFO vs. ASD
- 745.6 Endocardial cushion defects**
- 745.600 Ostium primum defects
 - 745.610 Single common atrium, cor triloculare biventriculare
 - 745.620 Common atrioventricular canal with ventricular septal defect (VSD)
 - 745.630 Common atrioventricular canal
 - 745.680 Other specified cushion defect
 - 745.690 Endocardial cushion defect, NOS
- 745.7 Cor biloculare**
- 745.700 Cor biloculare
- 745.8 Other specified defects of septal closure**
- 745.800 Other specified defects of septal closure
- 745.9 Unspecified defect of septal closure**
- 745.900 Unspecified defect of septal closure

746	Other Congenital Anomalies of Heart
746.0	Anomalies of pulmonary valve
746.000	Atresia, hypoplasia of pulmonary valve See 746.995 if valve is <u>not</u> specified (e.g., "Pulmonary atresia")
746.010	Stenosis of pulmonary valve See 746.995 of valve <u>not</u> specified (e.g., "pulmonary stenosis") Excludes: pulmonary infundibular stenosis (use 746.830)
746.020	Pulmonary valve insufficiency or regurgitation, congenital Excludes: cases designated as mild, minimal, trivial or physiologic
746.080	Other specified anomalies of pulmonary valve Excludes: pulmonary infundibular stenosis (use 746.830)
746.090	Unspecified anomaly of pulmonary valve
746.1	Tricuspid atresia and stenosis
746.100	Tricuspid atresia, stenosis, hypoplasia
746.105	Tricuspid valve insufficiency or regurgitation, congenital Excludes: cases designated as mild, minimal, trivial, or physiologic Ebstein's anomaly
746.2	Ebstein's anomaly
746.200	Ebstein's anomaly
746.3	Congenital stenosis of aortic valve
746.300	Congenital stenosis of aortic valve Includes: congenital aortic stenosis subvalvular aortic stenosis Excludes: <u>supra</u> valvular aortic stenosis (747.220)
746.4	Congenital insufficiency of aortic valve
746.400	Aortic valve insufficiency or regurgitation, congenital bicuspid aortic valve Excludes: cases designated as mild, minimal, trivial, or physiologic
746.480	Other specified anomalies of the aortic valves Includes: aortic valve atresia Excludes: <u>supra</u> valvular aortic stenosis (747.220)
746.490	Unspecified anomalies of the aortic valves
746.5	Congenital mitral stenosis
746.500	Congenital mitral stenosis
746.505	Absence, atresia, or hypoplasia of mitral valve

- 746.6 Mitral valve insufficiency or regurgitation, congenital**
- 746.600 Mitral valve insufficiency or regurgitation, congenital
Excludes: cases designated as mild, minimal, trivial, or physiologic
- 746.7 Hypoplastic left heart syndrome**
- 746.700 Hypoplastic left heart syndrome
Atresia, or marked hypoplasia of the ascending aorta and defective development of left ventricle (with mitral valve atresia)
- 746.8 Other specified anomalies of the heart**
- 746.800 Dextrocardia without situs inversus (situs solitus)
Dextrocardia with no mention of situs inversus
Excludes: dextrocardia with situs inversus (use 759.300)
- 746.810 Levocardia
- 746.820 Cor triatriatum
- 746.830 Pulmonary infundibular (subvalvular) stenosis
- 746.840 Trilogy of Fallot
- 746.850 Anomalies of pericardium
- 746.860 Anomalies of myocardium
cardiomegaly, congenital, NOS
cardiomyopathy, congenital
cardiomyopathy, hypertrophic
- 746.870 Congenital heart block
- 746.880 Other specified anomalies of heart
Includes: ectopia (ectopic) cordis (mesocardia), conduction defects, NOS
- 746.881 Hypoplastic left ventricle
Excludes: hypoplastic left heart syndrome (746.700)
- 746.882 Hypoplastic right heart (ventricle)
Uhl's disease
- 746.883 Hypoplastic ventricle, NOS
- 746.885 Anomalies of coronary artery or sinus
- 746.886 Ventricular hypertrophy (right or left)
- 746.887 Other defects of the atria
Excludes: congenital Wolfe-Parkinson-White (use 426.705)
rhythm anomalies (use 426.-, 427.-)
- 746.9 Unspecified anomalies of heart**
- 746.900 Unspecified anomalies of heart valves
- 746.910 Anomalous bands of heart
- 746.920 Acyanotic congenital heart disease, NOS
- 746.930 Cyanotic congenital heart disease, NOS
Blue baby
- 746.990 Unspecified anomaly of heart:
Includes: congenital heart disease (CHD)
Heart murmur
- 746.995 "Pulmonic" or "pulmonary" atresia, stenosis, or hypoplasia, NOS
(No mention of valve or artery)

747	Other Congenital Anomalies of Circulatory System
747.000	Patent ductus arteriosus (PDA) Always code if ≥ 2500 gm and ≥ 6 weeks of age Excludes: < 2500 gm regardless of presence of other defects Includes: < 6 weeks of age at diagnosis only if there was medical/surgical intervention such as indomethacin or surgical ligation, or if another reportable defect is present.
747.008	<u>Probable</u> PDA
747.1	Coarctation of aorta
747.110	Preductal (proximal) coarctation of aorta
747.110	Postductal (distal) coarctation of aorta
747.190	Unspecified coarctation of aorta
747.2	Other anomalies of aorta
747.200	Atresia of aorta absence of aorta pseudotruncus arteriosus
747.210	Hypoplasia of aorta tubular hypoplasia of aorta
747.215	Interrupted aortic arch
747.220	Supra-aortic stenosis (supravalvular) Excludes: aortic stenosis, congenital (see 746.300)
747.230	Persistent right aortic arch
747.240	Aneurysm of sinus of Valsalva
747.250	Vascular ring (aorta) double aortic arch Includes: vascular ring compression of trachea
747.260	Overriding aorta dextroposition of aorta
747.270	Congenital aneurysm of aorta congenital congenital dilatation of aorta
747.280	Other specified anomalies of aorta
747.290	Unspecified anomalies of aorta

- 747.3 Anomalies of pulmonary artery**
- 747.300 Pulmonary artery atresia, absence or agenesis
Use 746.995 if artery or valve is not specified
 - 747.310 Pulmonary artery atresia with septal defect
 - 747.320 Pulmonary artery stenosis
Use 746.995 if artery or valve is not specified
 - 747.325 Peripheral pulmonary artery stenosis
Includes: peripheral pulmonic stenosis (PPS)
peripheral pulmonic stenosis (PPS) murmur only if
documented by echocardiogram)
 - 747.330 Aneurysm of pulmonary artery dilatation of pulmonary
artery
 - 747.340 Pulmonary arteriovenous malformation or aneurysm
 - 747.380 Other specified anomaly of pulmonary artery
Includes: pulmonary artery hypoplasia
 - 747.390 Unspecified anomaly of pulmonary artery
- 747.4 Anomalies of great veins**
- 747.400 Stenosis of vena cava (inferior or superior)
 - 747.410 Persistent left superior vena cava
 - 747.420 (TAPVR) Total anomalous pulmonary venous return
 - 747.430 Partial anomalous pulmonary venous return
 - 747.440 Anomalous portal vein termination
 - 747.450 Portal vein - hepatic artery fistula
 - 747.480 Other specified anomalies of great veins
 - 747.490 Unspecified anomalies of great veins
- 747.5 Absence of hypoplasia of umbilical artery**
- 747.500 Single umbilical artery
- 747.6 Other anomalies of peripheral vascular system**
- 747.600 Stenosis of renal artery
 - 747.610 Other anomalies of renal artery
 - 747.620 Arteriovenous malformation (peripheral)
Excludes: pulmonary (747.340)
 cerebral (747.800)
 retinal (743.510)
 - 747.630 Congenital phlebectasia
congenital varix
 - 747.640 Other anomalies of peripheral arteries
Includes: aberrant subclavian artery
 - 747.650 Other anomalies of peripheral veins
Excludes: Budd-Chiari - occlusion of hepatic
vein (use 453.000)
 - 747.680 Other anomalies of peripheral vascular system
Includes: primary pulmonary artery hypertension
 - 747.690 Unspecified anomalies of peripheral vascular system

- 747.8 Other specified anomalies of circulatory system**
- 747.800 Arteriovenous (malformation) aneurysm of brain
 - 747.810 Other anomalies of cerebral vessels
Includes: vein of Galen
 - 747.880 Other specified anomalies of circulatory system
Excludes: congenital aneurysm:
coronary (746.880)
peripheral (747.640)
pulmonary (747.330)
retinal (743.510)
ruptured cerebral arteriovenous
aneurysm (430.000)
ruptured cerebral aneurysm (430.000)
- 747.9 Unspecified anomalies of circulatory system**
- 747.900 Unspecified anomalies of circulatory system

748	Congenital Anomalies of Respiratory System
748.0	Choanal atresia
748.000	Choanal atresia atresia of nares, anterior or posterior congenital stenosis
748.1	Other anomalies of nose
748.100	Agenesis or underdevelopment of nose
748.110	Accessory nose
748.120	Fissured, notched, or cleft nose
748.130	Sinus wall anomalies
748.140	Perforated nasal septum
748.180	Other specified anomalies of nose flat bridge of nose wide nasal bridge small nose and nostril absent nasal septum
748.185	Tubular nose, single nostril, proboscis
748.190	Unspecified anomalies of nose Excludes: congenital deviation of the nasal septum (use 754.020)
748.2	Web of larynx
748.205	Web of larynx-glottic
748.206	Web of larynx-subglottic
748.209	Web of larynx-NOS
748.3	Other anomalies of larynx, trachea, and bronchus
748.300	Anomalies of larynx and supporting cartilage
748.310	Congenital subglottic stenosis
748.330	Other anomalies of trachea Excludes: vascular ring compression of the trachea (use 747.250)
748.340	Stenosis of bronchus
748.350	Other anomalies of bronchus
748.360	Congenital laryngeal stridor, NOS
748.380	Other specified anomalies of larynx and bronchus
748.385	Cleft larynx, laryngotracheoesophageal cleft
748.390	Unspecified anomalies of larynx, trachea, and bronchus
748.4	Congenital cystic lung
748.400	Single cyst, lung or lung cyst
748.410	Multiple cysts, lung Polycystic lung
748.420	Honeycomb lung
748.480	Other specified congenital cystic lung

748.5	Agenesis or aplasia of lung
748.500	Agenesis or aplasia of lung
748.510	Hypoplasia of lung; pulmonary hypoplasia (exclude if isolated defect in infants <2,500 gm)
748.520	Sequestration of lung
748.580	Other specified dysplasia of lung
	Fusion of lobes of lung
748.590	Unspecified dysplasia of lung
748.6	Other anomalies of lung
748.600	Ectopic tissues in lung
748.610	Bronchiectasis
748.620	Accessory lobe of lung
748.625	Bilobar right lung or right lung with left lung bronchial pattern
748.690	Other and unspecified anomalies of lung
748.8	Other specified anomalies of respiratory system
748.800	Anomaly of pleura
748.810	Congenital cyst of mediastinum
748.880	Other specified respiratory system anomalies
	Includes: congenital lobar emphysema
	lymphanglectasia of lungs
748.9	Unspecified anomalies of respiratory system
748.900	Unspecified anomalies of respiratory system
	Absence of respiratory organ, NOS
	Anomaly of respiratory system, NOS

749 Cleft Palate and Cleft Lip

749.0 Cleft Palate alone

(If description of condition includes Pierre Robin Sequence, use additional code, 524.080)

749.000	Cleft hard palate, unilateral
749.010	Cleft hard palate, bilateral
749.020	Cleft hard palate, central
749.030	Cleft hard palate, NOS
749.040	Cleft soft palate, alone unilateral
749.050	Cleft soft palate, alone bilateral
749.060	Cleft soft palate, alone central
749.070	Cleft soft palate, alone NOS
749.080	Cleft uvula
749.090	Cleft palate, NOS palatoschisis

749.1 Cleft lip alone

Includes: alveolar ridge cleft
cleft gum
harelip

749.100	Cleft lip, unilateral
749.110	Cleft lip, bilateral
749.120	Cleft lip, central
749.190	Cleft lip, NOS (fused lip) cleft gum

749.2 Cleft lip with cleft palate

749.200	Cleft lip, unilateral, with any cleft palate
749.210	Cleft lip, bilateral, with any cleft palate
749.220	Cleft lip, central, with any cleft palate
749.290	Cleft lip, NOS, with any cleft palate

750	Other Congenital Anomalies of Upper Alimentary Tract
750.000	Tongue tie Ankyloglossia
750.1	Other anomalies of tongue Excludes: protruding tongue (never a defect)
750.100	Aglossia Absence of tongue
750.110	Hypoglossia (small tongue) Microglossia
750.120	Macroglossia (large tongue)
750.130	Dislocation or displacement of tongue Glossoptosis
750.140	Cleft tongue or spilt tongue
750.180	Other specified anomalies of tongue
750.190	Unspecified anomalies of tongue
750.2	Other specified anomalies of mouth and pharynx
750.200	Pharyngeal pouch
750.210	Other pharyngeal anomalies
750.230	Other anomalies of salivary glands or ducts
750.240	High arched palate
750.250	Other anomalies of palate
750.260	Lip fistulae or pits
750.270	Other lip anomalies Includes: notched lip, prominent philtrum, long philtrum Excludes: cleft lip (see 749)
750.280	Other specified anomalies of mouth and pharynx Excludes: receding jaw (see 524.0) large and small mouth (see 744.8)
750.3	Tracheoesophageal (T-E) fistula, esophageal atresia & stenosis
750.300	Esophageal atresia without mention of T-E fistula
750.310	Esophageal atresia with mention of T-E fistula
750.320	Tracheoesophageal fistula without mention of esophageal atresia
750.325	Tracheoesophageal fistula - "H" type
750.330	Bronchoesophageal fistula with or without mention of esophageal atresia
750.340	Stenosis or stricture of esophagus
750.350	Esophageal web
750.380	Other tracheoesophageal anomalies

- 750.4 Other specified anomalies of esophagus**
- 750.400 Congenital dilation of esophagus
Giant esophagus
 - 750.410 Displacement of esophagus
 - 750.420 Diverticulum of esophagus
esophageal pouch
 - 750.430 Duplication of esophagus
 - 750.480 Other specified anomalies of esophagus
- 750.5 Congenital hypertrophic pyloric stenosis**
- 750.500 Pylorospasm
 - 750.510 Congenital hypertrophic pyloric stenosis
 - 750.580 Other congenital pyloric obstruction
- 750.6 Congenital hiatus hernia**
- 750.600 Congenital hiatus hernia
Cardia displacement through esophageal hiatus
Partial thoracic stomach
Excludes: congenital diaphragmatic hernia (756.610)
- 750.7 Other specified anomalies of stomach**
- 750.700 Microgastria
 - 750.710 Megalogastria
 - 750.720 Cardiospasm
achalasia of cardia, congenital
 - 750.730 Displacement or transposition of stomach
 - 750.740 Diverticulum of stomach
 - 750.750 Duplication of stomach
 - 750.780 Other specified anomalies of stomach
- 750.8 Other specified anomalies of upper alimentary tract**
- 750.800 Other specified anomalies of upper alimentary tract
- 750.9 Unspecified anomalies of upper alimentary tract**
- 750.900 Unspecified anomalies of mouth and pharynx
 - 750.910 Unspecified anomalies of esophagus
 - 750.920 Unspecified anomalies of stomach
 - 750.990 Unspecified anomalies of upper alimentary tract

751	Other Congenital Anomalies of Digestive System
751.0	Meckel's diverticulum
751.000	Persistent omphalomesenteric duct persistent vitelline duct
751.010	Meckel's diverticulum
751.1	Atresia and stenosis of small intestine
751.100	Stenosis, atresia or absence of duodenum
751.110	Stenosis, atresia or absence of jejunum
751.120	Stenosis, atresia or absence of ileum
751.190	Stenosis, atresia or absence of small intestine
751.195	Stenosis, atresia or absence of small intestine with fistula
751.2	Atresia and stenosis of large intestine, rectum and anal canal
751.200	Stenosis, atresia or absence of large intestine Stenosis, atresia or absence of appendix
751.210	Stenosis, atresia or absence of rectum with fistula
751.220	Stenosis, atresia or absence of rectum without mention of fistula
751.230	Stenosis, atresia or absence of anus with fistula Includes: imperforate anus with fistula
751.240	Stenosis, atresia or absence of anus without mention of fistula Includes: imperforate anus without fistula
751.3	Hirschsprung's disease and other congenital functional disorders of the colon
751.300	Total intestinal aganglionosis
751.310	Long-segment Hirschsprung's disease; aganglionosis beyond the rectum
751.320	Short-segment Hirschsprung's disease; aganglionosis involving no more than the anal sphincter and the rectum
751.330	Hirschsprung's disease, NOS
751.340	Congenital megacolon congenital macrocolon, not aganglionic

751.4	Anomalies of intestinal fixation
751.400	Malrotation of cecum and/or colon
751.410	Anomalies of mesentery
751.420	Congenital adhesions or bands of omentum and peritoneum; Ladd's bands
751.490	Other specified and unspecified malrotation
751.495	Malrotation of small intestine alone
751.5	Other anomalies of intestine
751.500	Duplication of anus, appendix, cecum, or intestine enterogenous cyst
751.510	Transposition of appendix, colon, or intestine
751.520	Microcolon
751.530	Ectopic (displaced) anus
751.540	Congenital anal fistula
751.550	Persistent cloaca
751.560	Duodenal web
751.580	Other specified anomalies of intestine Includes: rectal fissures
751.590	Unspecified anomalies of intestine
751.6	Anomalies of gallbladder, bile ducts, and liver
751.600	Absence or agenesis of liver, total or partial
751.610	Cystic or fibrocystic disease of liver
751.620	Other anomalies of liver hepatomegaly hepatosplenomegaly (also use code 759.020) Excludes: Budd-Chiari (use 453.000)
751.630	Agenesis or hypoplasia of gallbladder
751.640	Other anomalies of gallbladder duplication of gallbladder
751.650	Agenesis or atresia of hepatic or bile ducts Includes: biliary atresia Excludes: congenital or neonatal hepatitis (use 774.480 or 774.490)
751.660	Choledochal cysts
751.670	Other anomalies of hepatic or bile ducts
751.680	Anomalies of biliary tract, NEC

- 751.7 Anomalies of pancreas**
- Excludes: fibrocystic disease of pancreas (277.000)
 diabetes mellitus, congenital, neonatal
- 751.700 Absence, agenesis or hypoplasia of pancreas
 751.710 Accessory pancreas
 751.720 Annular pancreas
 751.730 Ectopic pancreas
 751.740 Pancreatic cyst
 751.780 Other specified anomalies of pancreas
 751.790 Unspecified anomalies of pancreas
- 751.8 Other specified anomalies of digestive system**
- 751.800 Absence of alimentary tract, NOS
 (complete or partial)
 751.810 Duplication of alimentary tract
 751.820 Ectopic digestive organs, NOS
 751.880 Other specific anomalies of digestive system
- 751.9 Unspecified anomalies of digestive system**
- 751.900 Unspecified anomalies of digestive system
 congenital of digestive system, NOS
 anomaly, NOS
 deformity, NOS
 obstruction, NOS

- 752 Congenital Anomalies of Genital Organs**
Excludes: congenital hydrocele (778.600)
 testicular feminization syndrome (257.800)
 syndromes associated with anomalies in number
 and form of chromosomes (758)
- 752.0 Anomalies of ovaries**
- 752.000 Absence or agenesis of ovaries
 - 752.010 Streak ovary
 - 752.020 Accessory ovary
 - 752.080 Other specified anomalies of ovaries
 - 752.085 Multiple ovarian cysts
 - 752.090 Unspecified anomalies of ovaries
- 752.1 Anomalies of fallopian tubes and broad ligaments**
- 752.100 Absence of fallopian tube or broad ligament
 - 752.110 Cyst of mesenteric remnant
 epoophoron cyst
 cyst of Gartner's duct
 - 752.120 Fimbrial cyst
 parovarian cyst
 - 752.190 Other and unspecified anomalies of fallopian tube
 and broad ligaments
- 752.2 Doubling of uterus**
- 752.200 Doubling of uterus
 doubling of uterus (any degree) or associated with
 doubling of cervix and vagina

752.3	Other anomalies of uterus	
752.300	Absence or agenesis of uterus	
752.310	Displaced uterus	
752.320	Fistulae involving uterus with digestive or urinary tract	
	Includes: uterointestinal fistula	
	uterovesical fistula	
752.380	Other anomalies of uterus	
	bicornuate uterus	
	unicornis uterus	
752.390	Unspecified anomalies of uterus	
752.4	Anomalies of cervix, vagina, and external female genitalia	
752.400	Absence, atresia or agenesis of cervix	
752.410	Absence or atresia of vagina, complete or partial	
752.420	Congenital rectovaginal fistula	
752.430	Imperforate hymen	
752.440	Absence or other anomaly of vulva	
	fusion of vulva	
	hypoplastic labia majora	
752.450	Absence or other anomaly of clitoris	
	Includes: Clitoromegaly	
	enlarged clitoris	
	clitoral hypertrophy	
	prominent clitoris	
752.460	Embryonal cyst of vagina	
752.470	Other cyst of vagina, vulva, or canal of Nuck	
752.480	Includes: vaginal tags	
	hymenal tags	
752.490	Unspecified anomalies of cervix, vagina, or external female genitalia	

752.5 Undescended testicle

Not coded if < 1 year of age, unless there was medical/surgical intervention or another reportable defect

Excludes: retractile testicle

- 752.500 Undescended testicle, unilateral undescended, unpalpable
- 752.501 Left undescended testicle
- 752.502 Right undescended testicle
- 752.514 Undescended testicle, bilateral
- 752.520 Undescended testicle, NOS (Cryptorchidism)
- 752.530 Ectopic testis, unilateral and bilateral

752.6 Hypospadias and epispadias

- 752.600 Hypospadias (alone), NOS
- 752.605 1 degree, glandular, coronal
- 752.606 2 degree, penile
- 752.607 3 degree, perineal, scrotal
- 752.610 Epispadias
- 752.620 Congenital chordee (with hypospadias), NOS
- 752.621 Congenital chordee alone (chordee w/o hypospadias)
- 752.625 Cong. chordee with 1 degree, coronal hypospadias
- 752.626 Cong. chordee with 2 degree, penile hypospadias
- 752.627 Cong. chordee with 3 degree, perineal, scrotal hypospadias

752.7 Indeterminate sex and pseudohermaphroditism

Excludes: pseudohermaphroditism:
female, with adrenocortical disorder (see 255.200)
male, with gonadal disorder with specified chromosomal anomaly (see 758)

- 752.700 True hermaphroditism
ovotestis
- 752.710 Pseudohermaphroditism, male
- 752.720 Pseudohermaphroditism, female
pure gonadal dysgenesis
Excludes: gonadal agenesis (758.690)
- 752.730 Pseudohermaphrodite, NOS
- 752.790 Indeterminate sex, NOS
ambiguous genitalia

752.8	Other specified anomalies of male genital organs
752.800	Absence of testis monorchidism, NOS
752.810	Aplasia or hypoplasia of testis and scrotum
752.820	Other anomalies of testis and scrotum polyorchidism bifid scrotum Excludes: torsion of the testes or spermatic cord (use #608.200)
752.830	Atresia of vas deferens
752.840	Other anomalies of vas deferens and prostate
752.850	Absence or aplasia of penis
752.860	Other anomalies of penis absent or hooded foreskin redundant foreskin (never a defect)
752.865	Small penis, hypoplastic penis, or micropenis
752.870	Cysts of embryonic remnants cyst: hydatid of Morgagni Wolffian duct appendix testis
752.880	Other specified anomalies of genital organs microgenitalia macrogenitalia
752.9	Unspecified anomalies of genital organs
752.900	Unspecified anomalies of genital organs Congenital: of genital organ, NEC anomaly, NOS or deformity, NOS

753 Congenital Anomalies of Urinary System

753.0 Renal agenesis and dysgenesis

753.000 Bilateral absence, agenesis, dysplasia, or
hypoplasia of kidneys
Potter's syndrome

753.009 Renal agenesis, NOS

753.010 Unilateral absence, agenesis, dysplasia or
hypoplasia of kidneys

753.1 Cystic kidney disease

753.100 Renal cyst (single)

753.110 Polycystic kidneys, infantile type

753.120 Polycystic kidneys, adult type

753.130 Polycystic kidneys, NOS

753.140 Medullary cystic disease, juvenile type

753.150 Medullary cystic disease, adult type

Medullary sponge kidney

753.160 Multicystic renal dysplasia

Multicystic kidney

753.180 Other specified cystic disease

Includes: cystic kidneys, NOS

753.2 Obstructive defects of renal pelvis and ureter

753.200 Congenital hydronephrosis

753.210 Atresia, stricture, or stenosis of ureter

Includes: ureteropelvic junction obstruction/stenosis

ureterovesical junction obstruction/stenosis

hypoplastic ureter

753.220 Megaloureter, NOS

Includes: hydroureter

753.290 Other and unspecified obstructive defects of renal
pelvis and ureter

753.3 Other specified anomalies of kidney

753.300 Accessory kidney

753.310 Double or triple kidney and pelvis
pyelon duplex or triplex

753.320 Lobulated, fused, or horseshoe kidney

753.330	Ectopic kidney		
753.340	Enlarged, hyperplastic or giant kidney		
753.350	Congenital renal calculi		
753.380	Other specified anomalies of kidney	753.4	Other specified
	anomalies of ureter		
753.400	Absence of ureter		
753.410	Accessory ureter		
	double ureter, duplex collecting system		
753.420	Ectopic ureter		
753.480	Other specified anomalies of ureter		
	Includes: ureterocele		
753.485	Variations of vesicoureteral reflux		
753.5	Exstrophy of urinary bladder		
753.500	Exstrophy of urinary bladder		
	ectopia vesicae		
	extroversion of bladder		
753.6	Atresia and stenosis of urethra and bladder neck		
753.600	Congenital posterior urethral valves or posterior urethral obstruction		
753.610	Other atresia, or stenosis of bladder neck		
753.620	Obstruction, atresia or stenosis of anterior urethra		
753.630	Obstruction, atresia or stenosis of urinary meatus		
	Includes: meatal stenosis		
753.690	Other and unspecified atresia and stenosis of urethra and bladder neck		
753.7	Anomalies of urachus		
753.700	Patent urachus		
753.710	Cyst of urachus		
753.790	Other and unspecified anomaly of urachus		
753.8	Other specified anomalies of bladder and urethra		
753.800	Absence of bladder or urethra		
753.810	Ectopic bladder		
753.820	Congenital diverticulum or hernia of bladder		
753.830	Congenital prolapse of bladder (mucosa)		
753.840	Double urethra or urinary meatus		
753.850	Ectopic urethra or urethral orifice		

- 753.860 Congenital digestive-urinary tract fistulae
rectovesical fistula
- 753.870 Urethral fistula, NOS
- 753.880 Other specified anomalies of bladder and urethra

753.9 Unspecified anomalies of urinary system

- 753.900 Unspecified anomaly of kidney
- 753.910 Unspecified anomaly of ureter
- 753.920 Unspecified anomaly of bladder
- 753.930 Unspecified anomaly of urethra
- 753.990 Unspecified anomaly of urinary system, NOS

754 Certain Congenital Musculoskeletal Anomalies

754.0 Of skull, face, and jaw

Excludes: dentofacial anomalies (524.0)
Pierre Robin sequence (524.080)
syphilitic saddle nose (090.000)

- 754.000 Asymmetry of face
- 754.010 Compression (Potter's) facies
- 754.020 Congenital deviation of nasal septum
bent nose
- 754.030 Dolichocephaly
- 754.040 Depressions in skull
Includes: large fontanelle
small fontanelle
- 754.050 Plagiocephaly
- 754.055 Asymmetric head
- 754.060 Scaphocephaly, no mention of craniosynostosis
- 754.070 Trigonocephaly, no mention of craniosynostosis
- 754.080 Other specified skull deformity, no mention of craniosynostosis
Includes: brachycephaly
acrocephaly
turicephaly
oxycephaly
- 754.090 Deformity of skull, NOS

754.1 Anomalies of sternocleidomastoid muscle

- 754.100 Anomalies of sternocleidomastoid muscle
Includes: absent or hypoplastic sternocleidomastoid
contracture of sternocleidomastoid muscle
sternomastoid tumor

Excludes: congenital sternocleidomastoid torticollis
(use 756.860)

754.2 Certain congenital musculoskeletal deformities of spine

- 754.200 Congenital postural scoliosis
- 754.210 Congenital postural lordosis
- 754.220 Congenital postural curvature of spine, NOS

754.3 Congenital dislocation of hip

- 754.300 Congenital dislocation of hip
- 754.310 Unstable hip
 - preluxation of hip
 - subluxation of hip
 - predislocation status of hip at birth

754.4 Congenital genu recurvatum and bowing of long bones of leg

- 754.400 Bowing, femur
- 754.410 Bowing, tibia and/or fibula
- 754.420 Bow legs, NOS
- 754.430 Genu recurvatum
- 754.440 Dislocation of knee, congenital
- 754.490 Deformity of leg, NOS

754.5 Varus (inward) deformities of feet

- 754.500 Talipes equinovarus
- 754.510 Talipes calcaneovarus
- 754.520 Metatarsus varus or metatarsus adductus
- 754.530 Complex varus deformities
- 754.590 Unspecified varus deformities of feet

754.6 Valgus (outward) deformities of feet

- 754.600 Talipes calcaneovalgus
- 754.610 Congenital pes planus
- 754.615 Pes valgus
- 754.680 Other specified valgus deformities of foot
- 754.690 Unspecified valgus deformities of foot

754.7 Other deformities of feet

- 754.700 Pes cavus
 Claw foot (use 755.350 for claw foot)
- 754.720 Short Achilles tendon
- 754.730 Clubfoot, NOS
 talipes, NOS
- 754.735 Congenital deformities of foot, NOS
- 754.780 Other specified deformities of ankle and/or toes
 Includes: dorsiflexion of foot
 Excludes: widely spaced 1st and 2nd toes (use 755.600)

754.8 Other specified congenital musculoskeletal deformities

- 754.800 Pigeon chest (pectus carinatum)
- 754.810 Funnel chest (pectus excavatum)
- 754.820 Other anomalies of chest wall
 Includes: deformed chest, barrel chest
- 754.825 Shield chest
- 754.830 Dislocation of elbow
- 754.840 Club hand or fingers
- 754.850 Spade-like hand
- 754.880 Other specified deformity of hands
 (see 755.500 for specified anomalies of fingers)

755 Other Congenital Anomalies of Limbs

755.0 Polydactyly

- 755.005 Accessory fingers (postaxial polydactyly, Type A)
- 755.006 Skin tag (postaxial polydactyly, Type B)
- 755.007 Unspecified finger or skin tag (postaxial polydactyly, NOS)
- 755.010 Accessory thumbs (preaxial polydactyly)
- 755.020 Accessory toes (postaxial)
- 755.030 Accessory big toe (preaxial)
- 755.090 Accessory digits, NOS (hand/foot not specified)
- 755.095 Accessory digits hand, NOS (preaxial, postaxial not specified)
- 755.096 Accessory digits foot, NOS (preaxial, postaxial not specified)

755.1 Syndactyly

- 755.100 Fused fingers
- 755.110 Webbed fingers
- 755.120 Fused toes

755.130	Webbed toes Excludes: cases with webbing of the second and third toes Includes: webbing of other toes
755.190	Unspecified syndactyly (see below for specified site)
755.191	Unspecified syndactyly thumb and/or fingers, unilateral
755.192	Unspecified syndactyly thumb and/or fingers, bilateral
755.193	Unspecified (webbed vs. fused) syndactyly thumb and/or fingers, NOS
755.194	Unspecified syndactyly toes unilateral
755.195	Unspecified syndactyly toes bilateral
755.196	Unspecified syndactyly toes, NOS
755.199	Unspecified syndactyly (i.e., webbed vs. fused) digits not known

755.2 Reduction defects of upper limb

If description of condition includes amniotic or constricting bands use additional code, 658.800

755.200	Complete absence of upper limb amelia of upper limb
755.210	Absence of upper arm and forearm with hand present phocomelia of upper limb
755.220	Total absence of forearm only (radius and ulna)
755.230	Total absence of forearm and hand
755.240	Absence of hand and/or preaxial fingers Excludes: hypoplasia of upper limb (use 755.585) absent postaxial fingers (use 755.270) absent thumb (use 755.260)
755.250	Lobster claw hand Excludes: shortening of arm (use 755.580)
755.260	Preaxial (longitudinal) reduction defects of upper limb Includes: absence of radius absence of thumb
755.270	Postaxial (longitudinal) reduction defects of upper limb Includes: absence of ulna absence of fingers
755.280	Other specified upper limb reduction defects
755.290	Unspecified reduction defect of upper limb Includes: congenital amputation of upper limb, NOS

755.3 Reduction defects of lower limb

If description of condition includes amniotic or constricting bands use additional code, 658.800

- 755.525 Accessory carpal bones
- 755.526 Madelung's deformity
- 755.530 Anomalies of forearm, NOS
- 755.535 Radioulnar dysostosis
- 755.536 Radioulnar synostosis
- 755.540 Anomalies of elbow and upper arm
- 755.550 Anomalies of shoulder
- 755.555 Cleidocranial dysostosis
- 755.556 Sprengel's deformity
- 755.560 Other anomalies of whole arm
- 755.580 Other specified anomalies of upper limb
Includes: hyperextensibility of upper limb
shortening of arm
- 755.585 Hypoplasia of upper limb
Includes: hypoplasia of fingers, hands, or arms
Excludes: aplasia or absent upper limb (see 755.2)
- 755.590 Unspecified anomalies of upper limb

755.6 Other anomalies of lower limb, including pelvic girdle
Includes: complex anomalies involving all
or part of lower limb

- 755.600 Anomalies of toes
Includes: overlapping toes hammer toes
widely spaced first and second toes
- 755.605 Hallux valgus
- 755.606 Hallux varus
- 755.610 Anomalies of foot
Includes: plantar furrow
Excludes: lobster claw foot (use 755.350)
- 755.616 Rocker-bottom foot
- 755.620 Anomalies of ankle
astragaloscaphoid synostosis
- 755.630 Anomalies of lower leg
angulation of tibia, tibial torsion
(exclude if clubfoot present)
- 755.640 Anomalies of knee
hyperextended knee
- 755.645 Genu valgum
- 755.646 Genu varum
- 755.647 Absent patella or rudimentary patella
- 755.650 Anomalies of upper leg
anteversion of femur
- 755.660 Anomalies of hip

- Includes: coxa vara
coxa valga
other abnormalities of hips
- 755.665 Hip dysplasia, NOS
- 755.666 Unilateral hip dysplasia
- 755.667 Bilateral hip dysplasia
- 755.670 Anomalies of pelvis
fusion of sacroiliac joint
- 755.680 Other specified anomalies of lower limb
hyperextended legs
shortening of legs
- 755.685 Hypoplasia of lower limb
Includes: hypoplasia of toes, feet, legs
Excludes: aplasia or absent lower limb (see 755.3)
- 755.690 Unspecified anomalies of legs
- 755.8 Other specified anomalies of unspecified limb**
 - 755.800 Arthrogryposis multiplex congenita
Includes: distal arthrogryposis syndrome
Temporarily includes: flexion contractures of individual joints
 - 755.810 Larsen's syndrome
 - 755.880 Other specified anomalies of unspecified limb
Includes: overlapping digits, NOS
hyperextended joints, NOS
Excludes: hyperextended knees (use 755.640)
- 755.9 Unspecified anomalies of unspecified limb**
 - 755.900 Unspecified anomalies of unspecified limb
- 756 Other Congenital Musculoskeletal Anomalies**
 - 756.0 Anomalies of skull and face bones**
Excludes: skull and face deformities in 754
Pierre Robin sequence (use 524.080)
 - 756.000 Craniosynostosis, NOS
craniostenosis, NOS
closed-skull sutures, NOS
 - 756.005 Sagittal craniosynostosis
 - 756.006 Metopic craniosynostosis
 - 756.010 Coronal craniosynostosis
 - 756.020 Lambdoidal craniosynostosis

- 756.030 Other types of craniosynostosis
Includes: basilar craniosynostosis
- 756.040 Craniofacial dysostosis
Includes: Crouzon's disease
- 756.045 Mandibulofacial dysostosis
Includes: Franceschetti syndrome
Treacher-Collins syndrome
- 756.046 Other craniofacial syndromes
Includes: oculomandibulofacial syndrome
Hallermann-Streiff syndrome
- 756.050 Acrocephalosyndactyly, NOS
- 756.055 Acrocephalosyndactyly types I or II
Apert syndrome
- 756.056 Acrocephalosyndactyly type III
- 756.057 Other specified acrocephalosyndactylies
- 756.060 Goldenhar syndrome
oculoauriculovertebral dysplasia
- 756.065 Hemifacial microsomia
- 756.080 Other specified skull and face bone anomalies
Includes: localized skull defects
flat occiput
mid-facial hypoplasia
prominent occiput
prominent maxilla
hypotelorism
Excludes: macrocephaly (use 742.400)
small chin (see 524.0)
Pierre Robin sequence (use 524.080)
- 756.085 Hypertelorism, telecanthus, wide set eyes
- 756.090 Unspecified skull and face bone anomalies
Excludes: dentofacial anomalies (524.0)
skull defects associated with brain anomalies such as:
anencephalus (740.0)
encephalocele (742.0)
hydrocephalus (742.3)
microcephalus (742.100)

756.1 Anomalies of spine

- 756.100 Spina bifida occulta
- 756.110 Klippel-Feil syndrome
Wildervanck syndrome
- 756.120 Kyphosis
kyphoscoliosis

- 756.130 Congenital spondylolisthesis
- 756.140 Anomalies of cervical vertebrae
- 756.145 Hemivertebrae (cervical)
- 756.146 Agensis (cervical)
- 756.150 Anomalies of thoracic vertebrae
- 756.155 Hemivertebrae of thoracic vertebrae
- 756.156 Agensis of thoracic vertebrae
- 756.160 Anomalies of lumbar vertebrae
- 756.165 Hemivertebrae of lumbar vertebrae
- 756.166 Agensis of lumbar vertebrae
- 756.170 Sacrococcygeal anomalies
Includes: agensis of sacrum
Excludes: pilonidal sinus (see 685.100)
- 756.179 Sacral mass, NOS
- 756.180 Other specified vertebral anomalies
- 756.185 Hemivertebrae, NOS
- 756.190 Unspecified anomalies of spine

756.2 Cervical rib

- 756.200 Cervical rib
supernumerary rib in cervical region

756.3 Other anomalies of ribs and sternum

- 756.300 Absence of ribs
- 756.310 Misshapen ribs
- 756.320 Fused ribs
- 756.330 Extra ribs
- 756.340 Other anomalies of ribs
- 756.350 Absence of sternum
- 756.360 Misshapen sternum
- 756.380 Other anomalies of sternum
Includes: double ossification center in the manubrium, bifid sternum, short sternum
- 756.390 Anomalies of thoracic cage, unspecified
Excludes: deformed chest (use 754.820)

756.4 Chondrodystrophy

- 756.400 Asphyxiating thoracic dystrophy
Jeune syndrome
thoracic-pelvic-phalangeal dysplasia
Excludes: homozygous achondroplasia

756.410	Chondrodysplasia Ollier syndrome, enchondromatosis
756.420	Chondrodysplasia with hemangioma Kast syndrome Maffucci syndrome
756.430	Achondroplastic dwarfism
756.440	Other specified chondrodystrophies Excludes: Conradi's (use 756.575)
756.445	Diastrophic dwarfism
756.446	Metatrophic dwarfism
756.447	Thanatophoric dwarfism
756.450	Metaphyseal dysostosis
756.460	Spondyloepiphyseal dysplasia
756.470	Exostosis Excludes: Gardner syndrome (see 759.630)
756.480	Other specified chondrodystrophy
756.490	Unspecified chondrodystrophy Excludes: lipochondrodystrophy (use 277.510)

756.5 Osteodystrophies

756.500	Osteogenesis imperfecta
756.505	Osteopsathyrosis
756.506	Fragilitas ossium
756.510	Polyostotic fibrous dysplasia Albright-McCune-Sternberg syndrome
756.520	Chondroectodermal dysplasia
756.525	Ellis-van Creveld syndrome
756.530	Infantile cortical hyperostosis Caffey syndrome
756.540	Osteopetrosis Albers-Schonberg syndrome marble bones
756.550	Progressive diaphyseal dysplasia Engelmann syndrome Camurati-Engelmann disease
756.560	Osteopoikilosis
756.570	Multiple epiphyseal dysplasia
756.575	Conradi syndrome chondrodysplasia punctata Excludes: warfarin embryopathy
756.580	Other specified osteodystrophies
756.590	Unspecified osteodystrophies

756.6 Anomalies of diaphragm

- 756.600 Absence of diaphragm
- 756.610 Congenital diaphragmatic hernia
- 756.615 Diaphragmatic hernia (Bochdalek)
- 756.616 Diaphragmatic hernia (Morgagni)
- 756.617 Hemidiaphragm
- 756.620 Eventration of diaphragm
- 756.680 Other specified anomalies of diaphragm
- 756.690 Unspecified anomalies of diaphragm

756.7 Anomalies of abdominal wall

- 756.700 Exomphalos, omphalocele
- 756.710 Gastroschisis
 - Excludes: umbilical hernia (553.100)
- 756.720 Prune belly syndrome
- 756.790 Other and unspecified anomalies of abdominal wall
- 756.795 Epigastric hernia

756.8 Other specified anomalies of muscle, tendon, fascia and connective tissue

- 756.800 Poland syndrome or anomaly
- 756.810 Other absent or hypoplastic muscle
 - Includes: absent pectoralis major
 - Excludes: prune belly syndrome (use 756.720)
- 756.820 Absent tendon
- 756.830 Nail-patella syndrome
- 756.840 Amyotrophia congenita
- 756.850 Ehlers-Danlos syndrome
- 756.860 Congenital torticollis
 - (see also 754.100, anomalies of sternocleidomastoid muscle)
- 756.880 Other specified anomalies of muscle, tendon, fascia and connective tissue
 - Includes: myopathy, congenital NOS

756.9 Unspecified anomalies of musculoskeletal system

- 756.900 Unspecified anomalies of muscle
- 756.910 Unspecified anomalies of tendon
- 756.920 Unspecified anomalies of bone
- 756.930 Unspecified anomalies of cartilage

- 756.940 Unspecified anomalies of connective tissue
- 756.990 Unspecified anomalies of musculoskeletal system

757 Congenital Anomalies of the Integument

- 757.000 Hereditary edema of legs
Hereditary trophedema
Milroy's disease

757.1 Ichthyosis congenita

- 757.100 Harlequin fetus
- 757.110 Collodion baby
- 757.115 Bullous type
- 757.120 Sjogren-Larsson syndrome
- 757.190 Other and unspecified
- 757.195 Ichthyosis vulgaris
- 757.196 X-linked ichthyosis
- 757.197 Ichthyosiform erythroderma

757.2 Dermatoglyphic anomalies

- 757.200 Abnormal palmar creases
Includes: simian creases, transverse palmar creases

757.3 Other specified anomalies of skin
Excludes: pigmented mole (216.900)
hemangioma (see 228.0)

- 757.300 Specified syndromes, not elsewhere classified, involving skin anomalies
- 757.310 Skin tags
Includes: anal tags
Excludes: preauricular tag (see 744.110)
vaginal tags (see 752.480)
- 757.320 Urticaria pigmentosa
- 757.330 Epidermolysis bullosa
- 757.340 Ectodermal dysplasia
Excludes: Ellis-van Creveld syndrome (756.525)
- 757.345 X-linked type ectodermal dysplasia
- 757.346 Other specified ectodermal dysplasias
- 757.350 Incontinentia pigmenti
- 757.360 Xeroderma pigmentosum
- 757.370 Cutis laxa hyperelastica

- 757.380 Nevus, not elsewhere classifiable
Includes: port wine stain or nevus flammeus
Excludes: hairy nevus (use 216.900)
Sturge-Weber syndrome (use 759.610)
- 757.385 Birthmark, NOS
- 757.386 Mongolian blue spot
- 757.390 Other specified anomalies of skin
Includes: cafe au lait spots hyperpigmented areas
skin cysts hypoplastic dermal patterns
- 757.395 Absence of skin

757.4 Specified anomalies of hair
Excludes: kinky hair syndrome (use 759.870)

- 757.400 Congenital alopecia
Excludes: ectodermal dysplasia (use 757.340)
- 757.410 Beaded hair
Monilethrix
- 757.420 Twisted hair
Pili torti
- 757.430 Taenzer's hair
- 757.450 Persistent or excessive lanugo
Includes: hirsutism
- 757.480 Other specified anomalies of hair

757.5 Specified anomalies of nails

- 757.500 Congenital anonychia
Absent nails
- 757.510 Enlarged or hypertrophic nails
- 757.515 Onychauxis
- 757.516 Pachyonychia
- 757.520 Congenital koilonychia
- 757.530 Congenital leukonychia
- 757.540 Club nail
- 757.580 Other specified anomalies of nails
- 757.585 Hypoplastic (small) fingernails and/or toenails

757.6 Specified anomalies of breast

- 757.600 Absent breast with absent nipple
- 757.610 Hypoplastic breast with hypoplastic nipple
- 757.620 Accessory (ectopic) breast with nipple
- 757.630 Absent nipple

- 757.640 Small nipple (hypoplastic)
- 757.650 Accessory (ectopic) nipple, supernumerary
- 757.680 Other specified anomalies of breast
 - Widely spaced nipples
 - Excludes: inverted nipples (never a defect)

757.8 Other specified anomalies of the integument

- 757.800 Includes: scalp defects
 - For specified anomalies of skin see 757.390
 - For specified anomalies of hair see 757.480
 - For specified anomalies of nails see 757.580

757.9 Unspecified anomalies of the integument

- 757.900 Unspecified anomalies of skin
- 757.910 Unspecified anomalies of hair, NOS
- 757.920 Unspecified anomalies of nail, NOS
- 757.990 Unspecified anomalies of the integument, NOS

758 Chromosomal Anomalies

758.0 Down syndrome

Clinical Down syndrome karyotype identified as:

- 758.000 Down syndrome, karyotype trisomy 21
- 758.010 Down syndrome, karyotype trisomy G, NOS
- 758.020 Translocation trisomy - duplication of a 21
- 758.030 Translocation trisomy - duplication of a G, NOS
- 758.040 Mosaic Down syndrome
- 758.090 Down syndrome, NOS

758.1 Patau syndrome

Clinical Patau syndrome karyotype identified as:

- 758.100 Patau syndrome, karyotype trisomy 13
- 758.110 Patau syndrome, karyotype trisomy D, NOS
- 758.120 Translocation trisomy - duplication of a 13
- 758.130 Translocation trisomy - duplication of a D, NOS
- 758.190 Patau syndrome, NOS

758.2 Edwards syndrome

Clinical Edwards syndrome karyotype identified as:

- 758.200 Edwards syndrome, karyotype trisomy 18
- 758.210 Edwards syndrome, karyotype trisomy E, NOS
- 758.220 Translocation trisomy - duplication of an 18
- 758.230 Translocation trisomy - duplication of an E, NOS
- 758.290 Edwards syndrome, NOS
- 758.295 Edwards phenotype - normal karyotype

758.3 Autosomal deletion syndromes

- 758.300 Antimongolism syndrome
Clinical antimongolism syndrome:
karyotype - partial or total deletion of:
21
G, NOS
NOS
- 758.310 Cri du chat syndrome
Clinical Cri du chat syndrome:
karyotype - deletion of:
5
B, NOS
NOS
- 758.320 Wolff-Hirschorn syndrome
Clinical Wolff-Hirschorn syndrome:
karyotype - deletion of:
4
B, NOS
NOS
- 758.330 Deletion of long arm of 13
deletion of long arm of D, NOS
- 758.340 Deletion of long arm of E
deletion of long arm of 17 or 18
- 758.350 Deletion of short arm of E
deletion of short arm of 17 or 18
- 758.360 Monosomy G mosaicism
- 758.380 Other loss of autosomal material
- 758.390 Unspecified autosomal deletion syndromes

758.4 Balanced autosomal translocation in normal individual

- 758.400 Balanced autosomal translocation in normal individual

758.5 Other conditions due to autosomal anomalies

- 758.500 Trisomy 8
758.510 Other trisomy C syndromes
Trisomy: 6, 7, 9, 10, 11, 12, or C, NOS
758.520 Other total trisomy syndromes
Trisomy 22
Trisomy, NOS
758.530 Partial trisomy syndromes
758.540 Other translocations
Excludes: balanced translocation in normal individual (use 758.400)
758.580 Other specified anomalies of autosomes, NOS
Includes: marker autosome
758.585 Polyploidy
758.586 Triploidy
758.590 Unspecified anomalies of autosomes 758.6 Gonadal
Dysgenesis
Excludes: pure gonadal dysgenesis (752.720)
Noonan syndrome (759.800)

758.600 Turner's phenotype, karyotype 45, X [XO]
758.610 Turner's phenotype, variant karyotypes
karyotype characterized by:
isochromosome
mosaic, including XO
partial X deletion
ring chromosome
Excludes: Turner's phenotype, karyotype normal XX
(use 759.800, Noonan syndrome)
758.690 Turner syndrome, karyotype unspecified, NOS
Bonneville-Ullrich syndrome, NOS

758.7 Klinefelter syndrome

- 758.700 Klinefelter's phenotype, karyotype 47, XXY
758.710 Klinefelter's phenotype, other karyotype with additional X
chromosomes
XX
XXXY
XXYY
XXXXY
758.790 Klinefelter syndrome, NOS

758.8 Other conditions due to sex chromosome anomalies

- 758.800 Mosaic XO/XY, 45X/46XY
Excludes: with Turner's phenotype (758.610)
- 758.810 Mosaic XO/XX
Excludes: with Turner's phenotype (758.610)
- 758.820 Mosaic XY/XXY, 46XY/47XXY
Excludes: Klinefelter's phenotype (758.710)
- 758.830 Mosaic including XXXXY, 49XXXXY
Excludes: with Klinefelter's phenotype (use 758.710)
- 758.840 XYY, male, 47XYY
mosaic XYY male
- 758.850 XXX female, 47XXX
- 758.860 Additional sex chromosomes, NOS
- 758.880 Other specified sex chromosome anomaly
Includes: fragile X
- 758.890 Unspecified sex chromosome anomaly

758.9 Conditions due to anomaly of unspecified chromosomes

- 758.900 Mosaicism, NOS
- 758.910 Additional chromosome(s), NOS
- 758.920 Deletion of chromosome(s), NOS
- 758.930 Duplication of chromosome(s), NOS
- 758.990 Unspecified anomaly of chromosome(s)

759 Other and Unspecified Congenital Anomalies

759.0 Anomalies of spleen

- 759.000 Absence of spleen
asplenia
- 759.005 Ivermark syndrome
- 759.010 Hypoplasia of spleen
- 759.020 Hyperplasia of spleen
splenomegaly
hepatosplenomegaly (also use code 751.620)
- 759.030 Misshapen spleen
- 759.040 Accessory spleen
- 759.050 Ectopic spleen
- 759.080 Other specified anomalies of spleen
- 759.090 Unspecified anomalies of spleen

759.1 Anomalies of adrenal gland

- 759.100 Absence of adrenal gland
- 759.110 Hypoplasia of adrenal gland
- 759.120 Accessory adrenal gland
- 759.130 Ectopic adrenal gland
- 759.180 Other specified anomaly of adrenal gland
Excludes: congenital adrenal hyperplasia
 (use 255.200)
- 759.190 Unspecified anomalies of adrenal gland

759.2 Anomalies of other endocrine glands

- 759.200 Anomalies of pituitary gland
- 759.210 Anomalies of thyroid gland
- 759.220 Thyroglossal duct anomalies
thyroglossal cyst
- 759.230 Anomalies of parathyroid gland
- 759.240 Anomalies of thymus
thymic hypertrophy
absent thymus
- 759.280 Other specified anomalies of endocrine gland
- 759.290 Unspecified anomaly of endocrine gland

759.3 Situs inversus

- 759.300 Dextrocardia with complete situs inversus
- 759.310 Situs inversus with levocardia
- 759.320 Situs inversus thoracis
- 759.330 Situs inversus abdominis
- 759.340 Kartagener syndrome (triad)
- 759.390 Unspecified situs inversus
Excludes: dextrocardia (746.800) not
 associated with complete situs inversus

759.4 Conjoined twins

- 759.400 Dicephalus
two heads
- 759.410 Craniopagus
head-joined twins
- 759.420 Thoracopagus
thorax-joined twins

759.430	Xiphopagus xiphoid- and pelvis-joined twins
759.440	Pygopagus buttock-joined twins
759.480	Other specified conjoined twins
759.490	Unspecified conjoined twins
759.5	Tuberous sclerosis
759.500	Tuberous sclerosis Bourneville's disease epiloia
759.6	Other hamartoses, not elsewhere classified
759.600	Peutz-Jeghers syndrome
759.610	Encephalocutaneous angiomatosis Kalischer's disease Sturge-Weber syndrome
759.620	Von Hippel-Lindau syndrome
759.630	Gardner syndrome
759.680	other specified hamartomas
759.690	unspecified hamartomas
759.7	Multiple congenital anomalies,
759.700	Multiple congenital anomalies, anomaly, multiple, NOS deformity, multiple, NOS
759.8	Other specified anomalies and syndromes
759.800	Cong malformation syndromes affecting facial appearance cyclops Noonan syndrome oral-facial-digital (OFD) syndrome, type I Orofaciodigital syndrome, type II (Mohr syndrome) Waardenburg syndrome whistling face syndrome
759.820	Cong malformation syndromes associated with short stature Amsterdam dwarf (Cornelia de Lange syndrome) Cockayne syndrome Laurence-Moon-Biedl syndrome Russell-Silver syndrome

	Seckel syndrome
	Smith-Lemli-Opitz syndrome
759.840	Cong malformation syndromes involving limbs
	Carpenter syndrome
	Holt-Oram syndrome
	Klippel-Trenaunay-Weber syndrome
	Rubinstein-Taybi syndrome
	sirenomelia
	thrombocytopenia-absent radius (TAR) syndrome
759.860	Cong malformation syndromes with other skeletal changes
	Marfan syndrome
	Stickler syndrome
759.870	Cong malformation syndromes with metabolic disturbances
	Alport syndrome
	Beckwith (Wiedemann-Beckwith) syndrome
	leprechaunism
	Menkes syndrome (kinky hair syndrome)
	Prader-Willi syndrome
	Zellweger syndrome
759.890	Other specified anomalies
	Includes: hemihypertrophy
	Meckel-Gruber syndrome
759.9	Congenital anomaly, unspecified
759.900	Anomalies of umbilicus
	low-lying umbilicus
	umbilical cord atrophy
759.910	Embryopathia, NEC
759.990	Congenital anomaly, NOS

APPENDIX E
Condition Warrenting Chart Review

Record#	WARRANTNB	WARRANTNM
KINDNB		
20	000.002	Infants who weight less than 2,500 gm (5 lbs 8 ozs or are premature (gestation age < 37 weeks)
1		
21	000.003	Stillbirth and neonatal deaths
1		
22	000.004	Infants with a history of asphyxia at birth (apgar score at 5 minutes less than 7)
1		
23	000.005	Infants with a history of surgical procedure except for circumcision
1		
24	000.006	Infants admitted to neonatal intensive care or special care nurseries
1		
9	243.990	Hypothyroidism, congenital / hypotonia
1		
14	520.600	Natal teeth
1		
7	742.385	Central nervous system hemorrhage (defect if associated with hydrocephalus)
1		
17	742.580	Tethered cord, congenital
1		
4	743.450	Blue sclera (babies>2,500 gm)
1		
6	744.230	Cauliflower ear
1		
19	744.500	Webbing of the neck
1		
15	744.900	Short neck
1		
1	744.910	Abnormal facings
1		
5	746.860	Cardiomegaly--in presence of no other cardiovascular defects
1		
18	746.886	Ventricular hypertrophy
1		
8	746.990	Congenital heart disease
1		
16	747.500	Single umbilical artery
1		

10	750.500	Intermittent pyloric stenosis / intestinal obstruction or intussusception --never a defect,alone
1		
2	752.790	Amiguous genitalia
1		
13	759.700	Multiple congenital anomalies
1		
12	777.100	Meconium plug
1		
11	777.600	Meconium peritonitis
1		
3	778.000	Asscites or anasarce, congenital
1		
39	999.001	Not Birth Defect.
1		
40	999.002	Not Savannah River Region case.
1		
25	001.001	Funny looking kid
2		
26	001.002	Failure to thrive
2		
27	001.003	Developmental delay
2		
28	001.004	Fever of unknown origin (<1 year old)
2		
29	001.005	Infant and chidhood surgery--exclude:related to injury,tonsillectomy,circumcision,etc
2		
30	001.006	Recurrent infections, sepsis
2		
31	001.007	Central nervous system conditions:seizure,hypotonia,tethered cord,paralysis,paresis,largeor small head
2		
32	001.008	Gastrointestinal conditions: recurrent or persistent vomiting or diarrhea prolonged jaundice.....
2		
33	001.009	Genitourinary conditions:recurrent urinary tract infection,urinary obstruction, blood in urine, hypertension
2		
34	001.010	Cardivascular conditions: congestive heart failure / cyanosis
2		
35	001.011	Respiratory conditions:apnea, recurrent pneumonia, respiratory distress, persistent hoarseness of voice
2		

- 2 36 001.012 Other conditions: enlargrd thyroid gland, short neck
- 2 37 001.013 All infant deaths(under 1 year)--exclude deaths related to "prematurity", sids, accident, homicide
- 2 38 001.014 Childhood deaths between ages 1 and 6 years--exclude deaths related to injury,poisoning or sids
- 2 41 999.001 Not Birth Defect.
- 2 42 999.002 Not Savannah River Region case
- 2

APPENDIX F

Exclusion List

List ordered alphabetically

524.000 Abnormalities of jaw size

micrognathia

macrognathia

255.200 Adrenogenital syndrome

270.200 Albinism

277.620 Alpha-1 antitrypsin deficiency

658.800 Amniotic bands (constricting bands, amniotic cyst)

270.600 Arginosuccinic aciduria

778.000 Ascites, congenital

216 Benign neoplasm of skin

Includes: blue nevus

pigmented nevus

papilloma

dermatofibroma

syringoadenoma hydrocystoma

* * dermoid cyst syringoma

Excludes: skin of female genital organs (use 221.000),

skin of male genital organs (use 222.000)

216.200 Benign neoplasm of skin, ear and external auditory canal

Includes: auricle ear

external meatus

auricular canal

external canal

pinna

Excludes: cartilage of ear

216.100 Benign neoplasm of skin, eyelid, including canthus

Excludes: cartilage of eyelid

216.000 Benign neoplasm of skin, lip

Excludes: vermilion border of lip

216.700 Benign neoplasm of skin, lower limb, hip

216.300 Benign neoplasm of skin, other and unspecified parts of face

Includes: cheek, external

nose, external

eyebrow temple

216.800 Benign neoplasm of skin, other specified sites of skin

Excludes: epibulbar dermoid cyst (use 743.810)

216.400 Benign neoplasm of skin, scalp and skin of neck

216.900 Benign neoplasm of skin, site unspecified

Includes: hairy nevus (>4 inches diameter)

sebaceous cyst

216.500 Benign neoplasm of skin, trunk, except scrotum
 Includes: axillary fold
 perianal skin
 skin of: chest wall, abdominal wall, groin, buttock, anus,
 perineum, back, umbilicus, breast
 Excludes: anal canal
 anus, NOS
 skin of scrotum
 216.600 Benign neoplasm of skin, upper limb, shoulder
 # 221.000 Benign skin neoplasm of female genital organs
 # 222.000 Benign skin neoplasm of male genital organs
 453.000 Budd-Chiari, occlusion of hepatic vein
 427.900 Cardiac arrhythmias, NEC
 # 330.100 Cerebral lipidoses
 Includes: Tay-Sachs disease, gangliosidosis
 363.200 Chorioretinitis
 279.200 Combined immunodeficiency syndrome
 771.280 Congenital infection, other specified
 Excludes: human immunodeficiency virus (HIV)
 infection and acquired immunodeficiency
 syndrome (AIDS)
 # 277.000 Cystic fibrosis
 No mention of meconium ileus
 # 277.010 Cystic fibrosis
 With mention of meconium ileus
 228.100 Cystic hygroma
 Lymphangioma, any site
 771.100 Cytomegalovirus (CMV) (in utero infections only)
 253.820 Diencephalic syndrome
 279.110 DiGeorge syndrome
 277.400 Disorders of bilirubin excretion
 425.300 Endocardial fibroelastosis
 553.200 Epigastric hernia
 # 767.600 Erb's palsy
 # 368.000 Esotropia
 # 378.000 Exotropia
 # 351.000 Facial palsy
 331.890 Familial degenerative CNS disease
 760.710 Fetal alcohol syndrome
 760.718 Fetal alcohol syndrome, probable
 Includes: "facies"
 760.750 Fetal hydantoin (Dilantin) syndrome
 # 282.200 Glucose-6-phosphate dehydrogenase (G-6-PD) deficiency
 # 271.000 Glycogen storage diseases

228.0 Hemangioma

Include if greater than 4-inches diameter, if multiple hemangiomas, or if cavernous hemangioma

228.040 Hemangioma, intra-abdominal

228.020 Hemangioma, intracranial

228.090 Hemangioma, of other sites

228.000 Hemangioma, of unspecified site

228.030 Hemangioma, retinal

228.010 Hemangioma, skin & subcutaneous, NOS

286.000 Hemophilia (all types)

774.490 Hepatitis, neonatal, NOS

774.480 Hepatitis, neonatal, other specified

282.100 Hereditary elliptocytosis

282.000 Hereditary spherocytosis

771.220 Herpes simplex (in utero infections only)

Includes: encephalitis

meningoencephalitis

202.300 Histiocytosis, malignant

277.510 Hurler syndrome

Includes: lipochondrodystrophy

778.600 Hydrocele, congenital

270.700 Hyperglycinemia

251.200 Hypoglycemia, idiopathic

252.100 Hypoparathyroidism, congenital

275.330 Hypophosphatemic rickets

253.280 Hypopituitarism, congenital

243.990 Hypothyroidism, congenital

345.600 Infantile spasms, congenital

550.000 Inguinal hernia with mention of gangrene

550.900 Inguinal hernia with no obstruction

with no mention of gangrene

550.100 Inguinal hernia with obstruction (incarcerated)

with no mention of gangrene

208.000 Leukemia, congenital, NOS

214 Lipoma

214.300 Lipoma, intra-abdominal organs

214.200 Lipoma, intrathoracic organs

214.810 Lipoma, lumbar or sacral lipoma

paraspinal lipoma

214.100 Lipoma, other skin and subcutaneous tissue

214.800 Lipoma, other specified sites

214.000 Lipoma, skin and subcutaneous tissue of face

- 214.400 Lipoma, spermatic cord
- 214.900 Lipoma, unspecified site
- # 457.800 Lymphatics - other specified disorders of (including chylothorax)
- 524.000 Macrognathia
- # 270.300 Maple syrup urine disease
- # 777.600 Meconium peritonitis
- # 777.100 Meconium plug syndrome
- 524.000 Micrognathia
- 352.600 Moebius syndrome
- # 520.600 Natal teeth
- 239.200 Neck cyst
- 774.490 Neonatal hepatitis, NOS
- 774.480 Neonatal hepatitis, other specified
- 159.800 Neoplasms of the abdomen, other specified
- 191.000 Neoplasms of the CNS
 - Includes: medulloblastoma
 - gliomas
- 171.800 Neoplasms of the connective tissue
 - Includes: Ewing's sarcoma
 - fibrosarcoma
- 155.000 Neoplasms of the liver
 - Includes: hepatoblastoma
 - hemangio-epithelioma
- 162.800 Neoplasms of the lung
- 186.000 Neoplasms of the testes
- 194.000 Neuroblastoma
- 237.700 Neurofibromatosis
- # 379.500 Nystagmus
- # 270.100 Phenylketonuria (PKU)
- * 524.080 Pierre Robin sequence
- # 685.100 Pilonidal sinus (sacrodermal), sacral sinus, sacral dimple
- # 277.630 Pseudocholinesterase enzyme deficiency
- # 284.000 Red cell aplasia
- 362.600 Retinal degeneration, peripheral
- 362.700 Retinitis pigmentosa
- 190.500 Retinoblastoma
- 771.000 Rubella, congenital (in utero infections only)
- # 685.100 Sacral dimple
- # 282.600 Sickle cell anemia
- # 090.000 Syphilis, congenital (in utero infections only)
 - 238.030 Teratoma, abdomen
 - 238.010 Teratoma, head and face
 - 238.020 Teratoma, neck
 - 238.000 Teratoma, NOS
 - 238.080 Teratoma, other specified

238.040 Teratoma, sacral, coccygeal
 257.800 Testicular feminization syndrome
 771.090 TORCH infection, unspecified (in utero infections only)
 # 608.200 Torsion of the testes or spermatic cord
 771.210 Toxoplasmosis (in utero infections only)
 # 553.100 Umbilical hernia
 # 286.400 von Willebrand disease
 335.000 Werdnig-Hoffman disease
 189.000 Wilms tumor (nephroblastoma)
 426.705 Wolfe-Parkinson-White syndrome, congenital
 Other Specified Codes Used in Metro Atlanta Congenital Defects Program

List ordered by 6-digit code number

090.000 Syphilis, congenital (in utero infections only)
 155.000 Neoplasms of the liver
 Includes: hepatoblastoma
 hemangio-epithelioma
 159.800 Neoplasms of the abdomen
 162.800 Neoplasms of the lung
 171.800 Neoplasms of connective tissue
 Includes: Ewing's sarcoma
 fibrosarcoma
 186.000 Neoplasms of the testes
 189.000 Wilms tumor (nephroblastoma)
 190.500 Retinoblastoma
 191.000 Neoplasms of the CNS
 Includes: gliomas
 medulloblastoma
 194.000 Neuroblastoma
 202.300 Histiocytosis, malignant
 208.000 Leukemia, congenital, NOS

214 Lipoma

214.000 Lipoma, skin and subcutaneous tissue of face
 214.100 Lipoma, other skin and subcutaneous tissue
 214.200 Lipoma, intrathoracic organs
 214.300 Lipoma, intra-abdominal organs
 214.400 Lipoma, spermatic cord
 214.800 Lipoma, other specified sites
 214.810 Lipoma, lumbar or sacral lipoma
 paraspinal lipoma
 214.900 Lipoma, unspecified site

216 Benign neoplasm of skin

Include if greater than 4-inches diameter, if multiple hemangiomas, or if cavernous hemangioma

- # 228.000 Hemangioma, of unspecified site
- # 228.010 Hemangioma, skin & subcutaneous, NOS
- 228.020 Hemangioma, intracranial
- 228.030 Hemangioma, retinal
- 228.040 Hemangioma, intra-abdominal
- 228.090 Hemangioma, of other sites
- 228.100 Cystic hygroma
- Lymphangioma, any site
- 237.700 Neurofibromatosis
- 238.000 Teratoma, NOS
- 238.010 Teratoma, head and face
- 238.020 Teratoma, neck
- 238.030 Teratoma, abdomen
- 238.040 Teratoma, sacral, coccygeal
- 238.080 Teratoma, other specified
- 239.200 Neck cyst
- # 243.990 Hypothyroidism, congenital
- # 251.200 Hypoglycemia, idiopathic
- # 252.100 Hypoparathyroidism, congenital
- 253.280 Hypopituitarism, congenital
- 253.820 Diencephalic syndrome
- 255.200 Adrenogenital syndrome (adrenal hyperplasia)
- 257.800 Testicular feminization syndrome
- # 270.100 Phenylketonuria (PKU)
- # 270.200 Albinism
- # 270.300 Maple syrup urine disease
- # 270.600 Arginosuccinic aciduria
- # 270.700 Hyperglycinemia
- # 271.000 Glycogen storage diseases
- # 275.330 Hypophosphatemic rickets
- # 277.000 Cystic fibrosis with no mention of meconium ileus
- # 277.010 Cystic fibrosis with mention of meconium ileus
- 277.400 Disorders of bilirubin excretion
- 277.510 Hurler syndrome
- Includes: lipochondrodystrophy
- # 277.620 Alpha-1 antitrypsin deficiency
- # 277.630 Pseudocholinesterase enzyme deficiency
- 279.110 DiGeorge syndrome
- 279.200 Combined immunodeficiency syndrome
- # 282.000 Hereditary spherocytosis
- # 282.100 Hereditary elliptocytosis
- # 282.200 Glucose-6-phosphate dehydrogenase (G-6-PD) deficiency
- # 282.600 Sickle cell anemia

- # 284.000 Red cell aplasia
- # 286.000 Hemophilia (all types)
- # 286.400 von Willebrand disease
- # 330.100 Cerebral lipidoses
 - Includes: Tay-Sachs disease
 - gangliosidosis
- 331.890 Familial degenerative CNS disease
- 335.000 Werdnig-Hoffman disease
- 345.600 Infantile spasms, congenital
- # 351.000 Facial palsy
- 352.600 Moebius syndrome
- 362.600 Retinal degeneration, peripheral
- 362.700 Retinitis pigmentosa
- 363.200 Chorioretinitis
- # 368.000 Esotropia
- # 378.000 Exotropia
- # 379.500 Nystagmus
- 425.300 Endocardial fibroelastosis
- 426.705 Congenital Wolfe-Parkinson-White syndrome
- 427.900 Cardiac arrhythmias, NEC
- 453.000 Budd-Chiari, occlusion of hepatic vein
- # 457.800 Other specified disorders of lymphatics (including chylothorax)

- # 520.600 Natal teeth
- 524.000 Abnormalities of jaw size
 - micrognathia
 - macrognathia
- * 524.080 Pierre Robin sequence
- # 550.000 Inguinal hernia
 - with mention of gangrene
- # 550.100 Inguinal hernia with obstruction, (incarcerated)
 - with no mention of gangrene
- # 550.900 Inguinal hernia with no obstruction
 - with no mention of gangrene
- # 553.100 Umbilical hernia
- 553.200 Epigastric hernia
- # 608.200 Torsion of testes or spermatic cord
- 658.800 Amniotic bands (constricting bands, amniotic cyst)
- # 685.100 Pilonidal sinus (sacrodermal), sacral sinus, sacral dimple
- 760.710 Fetal alcohol syndrome
- 760.718 Probable fetal alcohol syndrome
 - Includes: "facies"
- 760.750 Fetal hydantoin (Dilantin) syndrome
- # 767.600 Erb's palsy

- 771 Congenital infections (in utero infections only)
 Excludes: congenital syphilis (use 090.000)
771.000 Rubella, congenital
771.090 TORCH infection, unspecified
771.100 Cytomegalovirus (CMV)
771.210 Toxoplasmosis
771.220 Herpes simplex
 Includes: encephalitis
 meningoencephalitis
771.280 Congenital infection, other specified
 Excludes: human immunodeficiency virus (HIV) infection and
 acquired immunodeficiency syndrome (AIDS)
774.480 Hepatitis, neonatal, other specified
774.490 Hepatitis, neonatal, NOS
777.100 Meconium plug syndrome
777.600 Meconium peritonitis
778.000 Ascites, congenital
778.600 Hydrocele, congenital

HHS:PHS:CDC:NCEH:DBDDD:BDGDB:CM:06/20/93
Doc. 6digit88, Version 06/93

ATTACHMENT 8

Appendix G

PLACE OF RESIDENCE AT DELIVERY

The residence at delivery is generally the place of usual residence as stated by the patient, or, as the Census Bureau states, "the place where he or she lives and sleeps most of the time or the place where the person considers to be his or her usual home." Residency is determined without regard to legal status or citizenship.

The following rules which provided for certain categories of persons whose residence is not immediately apparent have been adopted from the SEER Program Code Manual, Revised Edition (6/92):

Persons with More than One Residence: (e.g., "snowbirds") are considered residents of the place they designate as their residence at the time of diagnosis if their usual residence cannot be determined.

Persons with No Usual Residence: (e.g., transients or homeless persons) are considered residents of the place where they were staying when diagnosed with cancer. This may be the address of a shelter or the hospital where the diagnosis was made.

Persons Away at School: College students are considered residents of the area in which they are living while attending college. But children in boarding schools below the college level are considered residents of their parents' home.

Persons in Institutions: According to the Census Bureau, "Persons under formally authorized supervised care or custody" are considered residents of the institution. This includes incarcerated persons; persons in nursing, convalescent, and rest homes; persons in homes, schools, hospitals, or wards for the physically handicapped, mentally retarded, or mentally ill; and long-term residents of other hospitals, such as Veterans Administration (VA) hospitals.

Appendix G Continued

Note that rules used by departments of vital statistics for classification of residency at time of death may differ from Census rules and SEER rules. For example, persons who die in nursing homes may be considered on the death certificate as

residents of the place they lived before entering the nursing home, or of a residence they own but were not living in, rather than residents of the nursing home at death. It is important to review each case carefully and apply Census/SEER rules to determine residency, regardless of residency stated on the death certificate.

APPENDIX H

Persons in the Armed Forces and on Maritime Ships: Members of the armed forces are considered residents of the area in which the installation is located. For military personnel and their family members, use the stated address of the patient, whether on the installation or in the surrounding community.

The Census Bureau has formulated detailed rules for determining residency of persons assigned to Navy and Coast Guard ships and maritime ships. The rules include reference to such information as a ship's deployment, port of departure and destination, and its homeport. (Rules were simplified for the 1990 Census.) Refer directly to Census Bureau publications for the detailed rules to be applied.

Appendix I

SOUTH CAROLINA CITIES/TOWNS WITH CORRESPONDING COUNTIES

<u>CITY/TOWN</u>	<u>COUNTY</u>	<u>CITY/TOWN</u>	<u>COUNTY</u>
Abbeville	Abbeville	Bethune	Kershaw
Adams Run	Charleston	Bingham	Dillon
Aiken	Aiken	Bishopville	Lee
Aiken South	Aiken	Blacksburg	Cherokee
Aiken West	Aiken	Blackstock	Chester
Alcolv	Clarendon		Fairfield
Allendale	Allendale	Blackville	Barnwell
Anderson	Anderson	Blair	Fairfield
Andrews	Georgetown	Blenheim	Marlboro
	Williamsburg	Bluffton	Beaufort
Arcadia	Spartanburg	Blythewood	Richland
Arcadia Lakes	Richland	Bonneau	Berkeley
Ardincaple	Richland	Bowling Green	York
Arial	Pickens	Bowman	Orangeburg
Arkwright	Spartanburg	Boyden Arbor	Richland
Awendaw	Charleston	Bradley	Greenwood
Aynor	Horry	Branchville	Orangeburg
		Brandon	Greenville
Baldwin Mills	Chester	Brunson	Hampton
Ballentine	Richland	Buffalo	Union
Bamberg	Bamberg	Burnettown	Aiken
Barnwell	Barnwell	Burton	Beaufort
Batesburg	Lexington		
	Saluda	Cades	Williamsburg
Bath	Aiken	Calhoun Falls	Abbeville
Beaufort	Beaufort	Callison	Greenwood
Beech Island	Aiken	Camden	Kershaw
Belton	Anderson	Cameron	Calhoun
Belvedere	Aiken	Campobello	Spartanburg
Bendale	Richland	Canadys	Colleton
Bennettsville	Marlboro	Carlisle	Union
Berea	Greenville	Cassatt	Kershaw

* Some cities span two counties; the second listing for a city is the secondary county.

Appendix I Continued

Catawba	York	Daie	Beaufort
Cataeechee	Pickens	Dalzell	Sumter
Cayce	Lexington	Darlington	Darlington
Centenary	Marion	Denmark	Bamberg
Central	Pickens	Dillon	Dillon
Central Pacolet	Spartanburg	Donalds	Abbeville
Chapin	Lexington	Donaldson AFB	Greenville
Chappells	Newberry	Doneraile	Darlington
Charleston	Charleston	Dorchester	Dorchester
Charleston AFB	Charleston	Drayton	Spartanburg
Cheraw	Chesterfield	Due West	Abbeville
Chesnee	Spartanburg	Duford	Horry
Chester	Chester	Duncan	Spartanburg
Chesterfield	Chesterfield	Duncan	Greenville
City View	Greenville	Dupont	Charleston
Clarks Hill	McCormick		
Clearwater	Aiken	Early Branch	Hampton
Clemson	Pickens	Easley	Pickens
Cleveland	Greenville	East Gaffney	Cherokee
Clifton	Spartanburg	Eastover	Richland
Clinton	Laurens	Edgefield	Edgefield
Clio	Marlboro	Edgemoor	Chester
Clover	York	Edisto Island	Charleston
Columbia	Richland	Effingham	Florence
	Lexington	Ehrhardt	Bamberg
Conestee	Greenville	Elgin	Lancaster
Converse	Spartanburg	Elko	Barnwell
Conway	Horry	Elliott	Lee
Cope	Orangeburg	Elloree	Orangeburg
Cordesville	Berkeley	Enoree	Spartanburg
Cordova	Orangeburg	Equinox	Anderson
Cottageville	Colleton	Estill	Hampton
Coward	Florence	Eureka	Aiken
Cowpens	Spartanburg	Eutawville	Orangeburg
Cross	Berkeley		
Cross Anchor	Spartanburg	Fair Forest	Spartanburg
Cross Hill	Laurens	Fair Play	Oconee

Appendix I Continued

Fairfax	Hampton	Green Pond	Colleton
	Allendale	Green Sea	Horry
Fingerville	Spartanburg	Greenville	Greenville
Florence	Florence	Greenwood	Greenwood
Folly Beach	Charleston	Greer	Spartanburg
Forest Acres	Richland		Greenville
Forest Beach	Beaufort	Gresham	Marion
Forest Lake	Richland		
Foreston	Clarendon	Hagood	Sumter
Fork	Dillon	Hamer	Dillon
Fort Jackson	Richland	Hampton	Hampton
Fort Lawn	Chester	Hanahan	Berkeley
Fort Mill	York	Hardeeville	Jasper
Fort Motte	Calhoun	Harleyville	Dorchester
Fountain Inn	Laurens	Hartsville	Darlington
	Greenville	Heath Springs	Lancaster
Frogmore	Beaufort	Hemingway	Williamsburg
Furman	Hampton	Hickory Grove	York
		Hilda	Barnwell
Gable	Clarendon	Hilton Head	Beaufort
Gadsden	Richland	Hodges	Greenwood
Gaffney	Cherokee	Holly Hill	Orangeburg
Galivants Ferry	Horry	Hollywood	Charleston
Garnett	Hampton	Honea Path	Anderson
Gaston	Lexington		Abbeville
Georgetown	Georgetown	Hopkins	Richland
Gifford	Allendale	Huger	Berkeley
Gilbert	Lexington		
Glendale	Spartanburg	Industrial	York
Gloversville	Aiken	Inman	Spartanburg
Gluck	Anderson	Inman Mills	Spartanburg
Goose Creek	Berkeley	Irmo	Lexington
Govan	Bamberg		Richland
Gramling	Spartanburg	Irwin	Lancaster
Graniteville	Aiken	Islandton	Colleton
Gray Court	Laurens	Isle of Palms	Charleston
Great Falls	Chester	Iva	Anderson
Greeleyville	Williamsburg		

Appendix I Continued

Jackson	Aiken	Lincolnton	Charleston
Jacksonboro	Colleton	Little Mountain	Newberry
Jamestown	Berkeley	Little River	Horry
Jedburg	Dorchester	Little Rock	Dillon
Jefferson	Chesterfield	Livingston	Orangeburg
Jenkinsville	Fairfield	Lobeco	Beaufort
Joanna	Laurens	Lockhart	Union
Johns Island	Charleston	Lodge	Colleton
Johnsonville	Florence	Longs	Horry
Johnston	Edgefield	Loris	Horry
Jonesville	Union	Lowndesville	Abbeville
		Lowrys	Chester
Kershaw	Lancaster	Lugoff	Kershaw
	Kershaw	Luray	Hampton
Kinards	Newberry	Lydia	Darlington
Kings Creek	Cherokee	Lydia Mills	Laurens
Kingstree	Williamsburg	Lyman	Spartanburg
Kline	Barnwell	Lynchburg	Lee
Ladson	Charleston	Manning	Clarendon
	Berkeley	Marietta	Greenville
LaFrance	Anderson	Marion	Marion
Lake City	Florence	Martin	Allendale
Lakeview	Dillon	Mauldin	Greenville
Lamar	Darlington	Mayesville	Sumter
Lancaster	Lancaster	Mayo	Spartanburg
Lando	Chester	McBee	Chesterfield
Landrum	Spartanburg	McClellanville	Charleston
Lane	Williamsburg	McColl	Marlboro
Langley	Aiken	McConnells	York
Latta	Dillon	McCormick	McCormick
Laurel Bay	Beaufort	Meggett	Charleston
Laurens	Laurens	Miley	Hampton
Leesville	Lexington	Modoc	McCormick
Lena	Hampton	Monarch Mills	Union
Lexington	Lexington	Moncks Corner	Berkeley
Liberty	Pickens	Monetta	Saluda
Liberty Hill	Kershaw		Aiken

Appendix I Continued

Montmorenci	Aiken	Pacolet Park	Spartanburg
Moore	Spartanburg	Pageland	Chesterfield
Mount Carmel	McCormick	Pamplico	Florence
Mount Crogham	Chesterfield	Park Place	Greenville
Mount Holly	Berkeley	Parksville	McCormick
Mount Pleasant	Charleston	Parris Island	Beaufort
Mountain Rest	Oconee	Patrick	Chesterfield
Mountville	Laurens	Pauline	Spartanburg
Mullins	Marion	Pawleys Island	Georgetown
Murrells Inlet	Georgetown	Paxville	Clarendon
Myrtle Beach	Horry	Peak	Newberry
Myrtle Beach AFB	Horry	PeeDee	Marion
		Pelion	Lexington
Neeses	Orangeburg	Pelzer	Anderson
Nesmith	Williamsburg	Pendleton	Anderson
New Ellenton	Aiken	Perry	Aiken
New Zion	Clarendon	Pickens	Pickens
Newberry	Newberry	Piedmont	Anderson
Newry	Oconee		Greenville
Nichols	Marion	Pinehurst	Dorchester
Ninety Six	Greenwood	Pineland	Jasper
Norris	Pickens	Pineridge	Lexington
North	Orangeburg	Pineville	Berkeley
North Augusta	Aiken	Pinewood	Sumter
North Charleston	Charleston	Pinopolis	Berkeley
North Hartsville	Darlington	Plum Branch	McCormick
No. Myrtle Beach	Horry	Pomaria	Newberry
Norway	Orangeburg	Pontiac	Richland
		Port Royal	Beaufort
Oakley	Berkeley	Pregnall	Dorchester
Olanda	Florence	Prosperity	Newberry
Olar	Bamberg		
Orangeburg	Orangeburg	Rains	Marion
Oswego	Sumter	Ravenel	Charleston
Owings	Laurens	Reevesville	Dorchester
		Reidville	Spartanburg
Pacolet	Spartanburg	Rembert	Sumter
Pacolet Mills	Spartanburg	Richburg	Chester

Appendix I Continued

Richland	Oconee	Shaw AFB	Sumter
Ridge Spring	Saluda	Sheldon	Beaufort
Ridgeland	Jasper	Shulerville	Berkeley
Ridgeville	Dorchester	Silverstreet	Newberry
Ridgeway	Fairfield	Simpsonville	Greenville
Rion	Fairfield	Six Mile	Pickens
Ritter	Colleton	Slater	Greenville
Riverside	Lancaster	Smoaks	Colleton
Rock Hill	York	Smryna	York
Roebuck	Spartanburg	Snelling	Barnwell
Roundo	Colleton	Society Hill	Darlington
Rowesville	Orangeburg	South Congaree	Lexington
Ruby	Chesterfield	Southern Shops	Spartanburg
Ruffin	Colleton	Spartanburg	Spartanburg
Russelville	Berkeley	Spring Mills	Lancaster
	Colleton	Springdale	Lexington
		Springfield	Orangeburg
Saint Charles	Lee	Starr	Anderson
Saint George	Dorchester	Startex	Spartanburg
Saint Helena Island	Beaufort	State Park	Richland
Saint Matthews	Calhoun	Strangeville	Orangeburg
Saint Stephens	Berkeley	Stuckey	Williamsburg
Salem	Oconee	Sullivan's Island	Charleston
Salley	Aiken	Summerton	Clarendon
Salters	Williamsburg	Summerville	Dorchester
Saluda	Saluda	Summit	Lexington
Sandy Springs	Anderson	Sumter	Sumter
Sans Souci	Greenville	Surfside Beach	Horry
Santee	Orangeburg	Swansea	Lexington
Saxon	Spartanburg	Sycamore	Allendale
Scotia	Hampton		
Scranton	Florence	Tamassee	Oconee
Seabrook	Beaufort	Tanum	Marlboro
Sellers	Marion	Taylor	Greenville
	Dillon	Tigerville	Greenville
Seneca	Oconee	Tillman	Jasper
Shannontown	Sumter	Timmons ville	Florence
Sharon	York	Townville	Anderson

Appendix I Continued

Travelers Rest	Greenville	Williamston	Anderson
Trenton	Edgefield	Williston	Barnwell
Trio	Williamsburg	Wilson	Clarendon
Troy	Greenwood	Windsor	Aiken
Turbeville	Clarendon	Windy Hill	Florence
		Winnsboro	Fairfield
Ulmers	Allendale	Winnsboro Mills	Fairfield
Una	Spartanburg	Woodford	Orangeburg
Union	Union	Woodford	Orangeburg
Utica	Oconee	Woodruff	Spartanburg
		Yemassee	Beaufort
Van Wyck	Lancaster		Hampton
Vance	Orangeburg	Yonges Island	Charleston
Vamville	Hampton	York	York
Vaucluse	Aiken		
Wadmalaw Island	Charleston		
Wagener	Aiken		
Walhalla	Oconee		
Wallace	Marlboro		
Walterboro	Colleton		
Ward	Saluda		
Ware Shoals	Greenwood		
Warrenville	Aiken		
Waterloo	Laurens		
Wedgefield	Sumter		
Wellford	Spartanburg		
West Columbia	Lexington		
West Pelzer	Anderson		
West Union	Oconee		
Westminster	Oconee		
Westville	Kershaw		
White Rock	Richland		
White Stone	Spartanburg		
Whitmire	Newberry		
Whitney	Spartanburg		
Williams	Colleton		

Appendix I Continued
GEORGIA CITIES/TOWNS WITH CORRESPONDING COUNTIES

<u>CITY/TOWN</u>	<u>COUNTY</u>	<u>CITY/TOWN</u>	<u>COUNTY</u>
Abbeville	Wilcox	Atlanta	DeKalb
Acworth	Cobb		Fulton
Adiarsville	Bartow	Attapulgis	Decatur
Adel	Cook	Auburn	Barrow
Adrian	Emanuel	Augusta	Richmond
	Johnson	Austell	Cobb
Ailey	Montgomery		Douglas
Alamo	Wheeler	Avondale Estates	DeKalb
Alapaha	Berrien	Axson	Atkinson
Albany	Dougherty		
Aldora	Lamar	Baconton	Mitchell
Alexander	Burke	Bainbridge	Decatur
Allentown	Twiggs	Baldwin	Banks
	Wilkinson		Habersham
Alma	Bacon	Ball Ground	Cherokee
Almon	Newton	Barnesville	Lamar
Alpharetta	Fulton	Bartow	Jefferson
Alto	Banks	Barwick	Brooks
	Habersham		Thomas
Alto Park	Floyd	Baxley	Appling
Ambrose	Coffee	Belvedere	DeKalb
Americus	Sumter	Berlin	Colquitt
Amsterdam	Decatur	Berryton	Chattooga
Andersonville	Sumter	Bethlehem	Barrow
Appling	Columbia	Bibb City	Muscogee
Arabi	Crisp	Blackshear	Pierce
Aragon	Polk	Blackwells	Cobb
Arco (Dock Junction)	Glynn	Blairsville	Union
Arlington	Calhoun	Blakely	Early
	Early	Bloomingdale	Chatham
Arrowhead	Clayton (see Jonesboro)	Blue Ridge	Fannin
Ashburn	Turner	Blythe	Burke
Athens	Clarke		Richmond

* Some of the cities span two counties; the second listing for a city is the secondary county.

Appendix I Continued

Bogart	Clarke	Cecil	Cook
	Oconee	Cedartown	Polk
Bonaire	Houston	Centerville	Houston
Boston	Thomas	Chalybeate Springs	Meriwether
Bostwick	Morgan	Chamblee	DeKalb
Bowdon	Carroll	Chatsworth	Murray
Bowersville	Hart	Chauncey	Dodge
Bowman	Elbert	Chester	Dodge
Braselton	Jackson	Chickamauga	Walker
Bremen	Haralson	Chicopee	Hall
Bronwood	Terrell	Clarkdale	Cobb
Brookfield	Tift	Clarksville	Habersham
Brooklet	Bulloch	Clarkston	DeKalb
Broxton	Coffee	Claxton	Evans
Brunswick	Glynn	Clayton	Rabun
Buchanan	Haralson	Clermont	Hall
Buena Vista	Marion	Cleveland	White
Buford	Gwinnett	Climax	Decatur
	Hall	Clyo	Effingham
Butler	Taylor	Cobbtown	Tattnall
Byromville	Dooly	Cochran	Bleckley
Byron	Peach	Cogdell	Clinch
		Cohutta	Whitfield
Cadwell	Laurens	Colbert	Madison
Cairo	Grady	College Park	Clayton
Calhoun	Gordon		Fulton
Calvary	Grady	Collins	Tattnall
Camilla	Mitchell	Colquitt	Miller
Canon	Franklin	Columbus	Muscogee
	Hart	Comer	Madison
Canton	Cherokee	Commerce	Jackson
Carlton	Madison	Concord	Pike
Carnesville	Franklin	Constitution	DeKalb
Carrollton	Carroll	Conyers	Rockdale
Cartersville	Bartow	Coolidge	Thomas
Cassville	Bartow	Cordele	Crisp
Cataula	Harris	Cornelia	Habersham
Cave Spring	Floyd	Covington	Newton

Appendix I Continued

Crawford	Oglethorpe	Dudley	Laurens
Crawfordville	Taliaferro	Duluth	Gwinnett
Culloden	Monroe	Dunairo	DeKalb
Cumming	Forsyth	Dunwoody	DeKalb
Cusseta	Chattahoochee	DuPont	Clinch
Cuthbert	Randolph		
		East Dublin	Laurens
Dacula	Gwinnett	East Ellijay	Gilmer
Dahonega	Lumpkin	East Griffin	Spalding
Dallas	Paulding	Eastman	Dodge
Dalton	Whitfield	East Newnan	Coweta
Damascus	Early	East Point	Fulton
Danielsville	Madison	Eatonton	Putnam
Danville	Twiggs	Eden	Effingham
	Wilkinson	Edison	Calhoun
Darien	McIntosh	Elberta	Houston
Dasher	Lowndes	Elberton	Elbert
Davisboro	Washington	Elizabeth	Cobb
Dawson	Terrell	Ellaville	Schley
Dawsonville	Dawson	Ellenton	Colquitt
Dearing	McDuffie	Ellenwood	Clayton
Decatur	DeKalb	Ellerslie	Harris
Deenwood	Ware	Ellijay	Gilmer
Demorest	Habersham	Embry Hills	DeKalb
De Soto	Sumter	Emerson	Bartow
De Soto Park	Floyd	Emory University	DeKalb
Dexter	Laurens	Enigma	Berrien
Dock Junction	Glynn	Epworth	Fannin
Doerun	Colquitt	Eton	Murray
Donalsonville	Seminole	Eulonia	McIntosh
Doraville	DeKalb	Evans	Columbia
Douglas	Coffee	Everett	Glynn
Douglasville	Douglas	Experiment	Spalding
Dillard	Rabun		
Druid Hills	DeKalb	Fairburn	Fulton
Dry Branch	Bibb	Fairmount	Gordon
	Twiggs	Fair Oaks	Cobb
Dublin	Laurens	Fargo	Clinch

Appendix I Continued

Fayetteville	Fayette	Gough	Burke
Fitzgerald	Ben Hill	Gracewood	Richmond
Flemington	Liberty	Grantville	Coweta
Flintstone	Walker	Gray	Jones
Flippen	Henry	Grayson	Gwinnett
Flovilla	Butts	Greensboro	Greene
Flowery Branch	Hall	Greenville	Meriwether
Folkston	Charlton	Griffin	Spalding
Forest Park	Clayton	Grovetown	Columbia
Forsyth	Monroe	Guyton	Effingham
Fort Benning	Chattahoochee		
	Muscogee	Habersham	Habersham
Fort Gaines	Clay	Haddock	Jones
Fort Gordon	Richmond	Hagan	Evans
Fort Oglethorpe	Catoosa	Hahira	Lowndes
	Walker	Hamilton	Harris
Fort Stewart	Liberty	Hampton	Henry
Fort Valley	Peach	Hapeville	Fulton
Fowlstown	Decatur	Hardwick	Baldwin
Franklin	Heard	Harlem	Columbia
Franklin Springs	Franklin	Harrison	Washington
Funston	Colquitt	Hartwell	Hart
		Hawkinsville	Pulaski
Gaines Community	Clarke	Hazelhurst	Jeff Davis
Gainesville	Hall	Helen	White
Gainesville Cotton Mills		Helena	Telfair
	Hall	Hephzibah	Richmond
Garden City	Chatham	Hiawassee	Town
Garden Lakes	Floyd	Highland Mills	Spalding
Gardi	Wayne	Hillsboro	Jasper
Geneva	Talbot	Hilltonia	Screven
Georgetown	Quitman	Hinesville	Liberty
Gibson	Glascok	Hiram	Paulding
Glen Haven	DeKalb	Hoboken	Brantley
Glennville	Tattnall	Hogansville	Troup
Glenwood	Wheeler	Holly Springs	Cherokee
Glynco	Glynn	Homeland	Charlton
Gordon	Wilkinson	Horner	Banks

Appendix I Continued

Homerville	Clinch	Leesburg	Lee
Hortense	Brantley	Lenox	Cook
Hoschton	Jackson	Leslie	Sumter
		Lexington	Oglethorpe
Ideal	Macon	Lilburn	Gwinnett
Indian Springs	Butts	Lincoln Park	Upton
Iron City	Seminole	Lincolnton	Lincoln
Irwinton	Wilkinson	Lindale	Floyd
Irwinville	Irwin	Linwood	Walker
Isle of Hope	Chatham	Lithia Springs	Douglas
		Lithonia	DeKalb
Jackson	Butts	Lizella	Bibb
Jasper	Pickens	Locust Grove	Henry
Jefferson	Jackson	Loganville	Gwinnett
Jeffersonville	Twiggs		Walton
Jenkinsburg	Butts	Lookout Mountain	Walker
	Henry	Louisville	Jefferson
Jesup	Wayne	Louvale	Stewart
Jonesboro	Clayton	Ludowici	Long
Junction City	Talbot	Lula	Banks
			Hall
Kennesaw	Cobb	Lumber City	Telfair
Keysville	Burke		Wheeler
Kingsland	Camden	Lumpkin	Stewart
Kingston	Bartow	Luthersville	Meriwether
Kite	Johnson	Lyerly	Chattooga
Knoxville	Crawford	Lyons	Toombs
LaFayette	Walker	Mableton	Cobb
LaGrange	Troup	Macon	Bibb
Lake City	Clayton	Madison	Morgan
Lakeland	Lanier	Manchester	Meriwether
Lakemont	Rabun		Talbot
Lake Park	Lowndes	Manor	Ware
La Vista	DeKalb	Mansfield	Newton
Lavonia	Franklin	Marietta	Cobb
Lawrenceville	Gwinnett	Marietta East	Cobb
Leary	Calhoun		

Appendix I Continued

Marine Center	Dougherty	Mountain Park	Cherokee
Marlow	Effingham		Fulton
Marshallville	Macon	Mountain View	Clayton
Martinez	Columbia	Mount Airy	Habersham
	Richmond	Mount Berry	Floyd
Maysville	Banks	Mount Vernon	Montgomery
	Jackson	Mount Zion	Carroll
McCaysville	Fannin	Mystic	Irwin
McDonough	Henry		
McIntosh	Liberty	Nahunta	Brantley
McIntyre	Wilkinson	Nashville	Berrien
McRae	Telfair	Nelson	Cherokee
Meansville	Pike		Pickens
Mechanicsville	Gwinnett	Newborn	Jasper
Meigs	Mitchell		Newton
	Thomas	New Holland	Hall
Mekrim	Effingham	Newington	Screven
Menlo	Chattooga	Newnan	Coweta
Metter	Candler	Newton	Baker
Midville	Burke	Nicholls	Coffee
Midway	Hardwick	Nicholson	Jackson
	Baldwin	Norcross	Gwinnett
Millen	Jenkins	Norman Park	Colquitt
Millwood	Ware	North Atlanta	DeKalb
Milner	Lamar	North Canton	Cherokee
Milstead	Rockdale	North Decatur	DeKalb
Molena	Pike	North Druid Hills	DeKalb
Monroe	Walton	Norwood	Warren
Montezuma	Macon		
Montgomery	Chatham	Oakdale	Cobb
Monticello	Jasper	Oak Grove	DeKalb
Moody	Lowndes	Oakwood	Hall
Moreland	Coweta	Ochlocknee	Thomas
Morgan	Calhoun	Ocilla	Irwin
Morrow	Clayton	Oconee	Washington
Morven	Brooks	Odum	Wayne
Moultrie	Colquitt	Offerman	Pierce
Mountain City	Rabun	Oglethorpe	Macon

Appendix I Continued

Omega	Tift	Radium Springs	Dougherty
Oxford	Newton	Ray City	Berrien
		Rebecca	Turner
Palmetto	Coweta	Redan	DeKalb
	Fulton	Red Oak	Fulton
Panthersville	DeKalb	Register	Bulloch
Paradise	Park	Rehoboth	DeKalb
	Chatham	Reidsville	Tattnall
Patterson	Pierce	Remerton	Lowndes
Pavo	Brooks	Rentz	Laurens
	Thomas	Resaca	Gordon
Peachtree City	Fayette	Rex	Clayton
Pearson	Atkinson	Reynolds	Taylor
Pelham	Mitchell	Rhine	Dodge
Pembroke	Bryan	Riceboro	Liberty
Pendergrass	Jackson	Richland	Stewart
Perry	Houston	Richmond Hill	Bryan
Phillipsburg	Tift	Rincon	Effingham
Pinehurst	Dooly	Ringgold	Catoosa
Pine Lake	DeKalb	Rising Fawn	Dade
Pine Mountain	Harris	Riverdale	Clayton
Pine Mountain Valley	Harris	Riverside	Floyd
Pineora	Effingham	Roberta	Crawford
Pine Park	Grady	Rochelle	Wilcox
Pineview	Wilcox	Rockmart	Polk
Pitts	Wilcox	Rocky Face	Whitfield
Plains	Sumter	Rocky Ford	Screven
Pooler	Chatham	Rome	Floyd
Portal	Bulloch	Rose Hill	Chatham
Porterdale	Newton	Rossville	Walker
Port Wentworth	Chatham	Roswell	Fulton
Poulan	Worth	Royston	Franklin
Powder Springs	Cobb		Hart
Preston	Webster		Madison
Putney	Dougherty	Russell	Barrow
		Rutledge	Morgan
Quitman	Brooks		
		Sale City	Mitchell

Appendix I Continued

Sandersville	Washington	Stillmore	Emanuel
Sandy Springs	Fulton	St. Marys	Camden
Sardis	Burke	Stockbridge	Henry
Sargent	Coweta	Stockton	Lanier
Sasser	Terrell	Stone Mountain	DeKalb
Savannah	Chatham	Stonewall	Fulton
Savannah Beach	Chatham	St. Simons	Glynn
Scotland	Telfair	Sugar Hill	Gwinnett
	Wheeler	Summerville	Chattooga
Scottdale	DeKalb	Surrency	Appling
Screven	Wayne	Suwanee	Gwinnett
Sea Island	Glynn	Swainsboro	Emanuel
Senoia	Coweta	Swords	Morgan
Shady Dale	Jasper	Sycamore	Turner
Shannon	Floyd	Sylvania	Screven
Shellman	Randolph	Sylvester	Worth
Shiloh	Harris		
Siloam	Greene	Talbotton	Talbot
Silver Creek	Floyd	Tallapoosa	Haralson
Silvertown	Upson	Tallulah Falls	Habersham
Skyland	DeKalb		Rabun
Smithville	Lee	Tarrytown	Montgomery
	Sumter	Tae	Pickens
Smyrna	Cobb	Taylorsville	Bartow
Snellville	Gwinnett		Polk
Social Circle	Walton	Temple	Carroll
Soperton	Treutlen	Tennille	Washington
South Cobb	Cobb	Thomaston	Upson
Sparks	Cook	Thomasville	Thomas
Sparta	Hancock	Thomson	McDuffie
Springfield	Effingham	Thunderbolt	Chatham
Stapleton	Jefferson	Tifton	Tift
Starrs Mill	Fayette	Tiger	Rabun
State College	Chatham	Tignall	Wilkes
Statenville	Echols	Timothy	Clarke
Statesboro	Bulloch	Toccoa	Stephens
Statham	Barrow	Toccoa Falls	Stephens
St. George	Charlton	Toco Hills	DeKalb

Appendix I Continued

Toombsboro	Wilkinson	Waynesboro	Burke
Trenton	Dade	West Green	Coffee
Trion	Chattooga	Westoak	Cobb
Tucker	DeKalb	West Point	Harris
Tunnel Hill	Whitfield		Troup
Twin City	Emanuel	Whigham	Grady
Twin Lakes	Lowndes	White	Bartow
Ty Ty	Tift	Whitehall	Clarke
		Whitesburg	Carroll
Unadilla	Dooly	Whitestone	Gilmer
Union City	Fulton	Whitesville	Harris
Union Point	Greene	Wildwood	Dade
Unionville	Tift	Willacoochee	Atkinson
Uvalda	Montgomery	Williamson	Pike
		Wilmington Island	Chatham
Valdosta	Lowndes	Wilshire	Chatham
Van Wert	Polk	Winder	Barrow
Varnell	Whitfield	Windsor Forest	Chatham
Vidalia	Montgomery	Winterville	Clarke
	Toombs	Woodbine	Camden
Vienna	Dooly	Woodbury	Meriwether
Villa Rica	Carroll	Woodland	Talbot
	Douglas	Woodstock	Cherokee
Vinings	Cobb	Woodville	Greene
Vista Grove	DeKalb	Wray	Irwin
		Wrens	Jefferson
Waco	Haralson	Wrightsville	Johnson
Wadley	Jefferson	Wayside	Jones
Waleska	Cherokee	Winston	Douglas
Waresboro	Ware		
Warm Springs	Meriwether	Yatesville	Upton
Warner Robins	Houston	Young Harris	Towns
Warrenton	Warren		
Warwick	Worth	Zeublon	Pike
Washington	Wilkes		
Watkinsville	Oconee		
Waverly Hall	Harris		
Waycross	Ware		

CODES FOR SOUTH CAROLINA COUNTIES/STATES

ABBV. ST	CODE	COUNTY	ABBV. ST	CODE	STATE
SC	001	ABBEVILLE	AK	000	ALASKA
SC	003	AIKEN	AL	000	ALABAMA
SC	005	ALLENDALE	AR	000	ARKANSAS
SC	007	ANDERSON	AZ	000	ARIZONA
SC	009	BAMBERG	LA	000	LOUISIANA NOS
SC	011	BARNWELL	CM	129	NO MARIANA ISLANDS
SC	013	BEAUFORT	CO	000	COLORADO
SC	015	BERKELEY	CT	000	CONNECTICUT
SC	017	CALHOUN	DC	000	DISTRICT OF COLUMBIA
SC	019	CHARLESTON	DC	000	WASHINGTON, DC
SC	021	CHEROKEE	DE	000	DELAWARE
SC	023	CHESTER	FL	000	FLORIDA
SC	025	CHESTERFIELD	GA	000	GEORGIA
SC	027	CLARENDON	GU	126	GUAM
SC	029	COLLETON	HI	000	HAWAII
SC	031	DARLINGTON	IA	000	IOWA
SC	033	DILLON	ID	000	IDAHO
SC	035	DORCHESTER	IL	000	ILLINOIS
SC	037	EDGEFIELD	IN	000	INDIANA
SC	039	FAIRFIELD	KS	000	KANSAS
SC	041	FLORENCE	KY	000	KENTUCKY
SC	043	GEORGETOWN	LA	000	LOUISIANA
SC	045	GREENVILLE	MA	000	MASSACHUSETTS
SC	047	GREENWOOD	MD	000	MARYLAND
SC	049	HAMPTON	ME	000	MAINE
SC	051	HORRY	MI	000	MICHIGAN
SC	053	JASPER	MN	000	MINNESOTA
SC	055	KERSHAW	MO	000	MISSOURI
SC	057	LANCASTER	MS	000	MISSISSIPPI
SC	059	LAURENS	MT	000	MONTANA
SC	061	LEE	NC	000	NORTH CAROLINA
SC	063	LEXINGTON	ND	000	NORTH DAKOTA
SC	065	MCCORMICK	NE	000	NEBRASKA
SC	067	MARION	NH	000	NEW HAMPSHIRE
SC	069	MARLBORO	NJ	000	NEW JERSEY
SC	071	NEWBERRY	NM	000	NEW MEXICO
SC	073	OCONEE	NV	000	NEVADA
SC	075	ORANGEBURG	NY	000	NEW YORK
SC	077	PICKENS	OH	000	OHIO
SC	079	RICHLAND	OK	000	OKLAHOMA
SC	081	SALUDA	OR	000	OREGON
SC	085	SPARTANBURG	PA	000	PENNSYLVANIA
SC	085	SUMTER	PR	000	PUERTO RICO
SC	087	UNION	RI	000	RHODE ISLAND
SC	089	WILLIAMSBURG	SC	026	SOUTH CAROLINA
SC	091	YORK	SD	000	SOUTH DAKOTA

CANSUR/NET 1.34

CODES FOR SOUTH CAROLINA COUNTIES/STATES

<u>ABBV.</u> <u>ST</u>	<u>CODE</u>	<u>COUNTY</u>	<u>ABBV.</u> <u>ST</u>	<u>CODE</u>	<u>STATE</u>
			TN	000	TENNESSEE
			TT	000	TRUST TERRITORIES
			TT	129	NO MARIANA ISLANDS
			TX	000	TEXAS
			UT	000	UTAH
			VA	000	VIRGINIA
			VI	000	VIRGIN ISLANDS
			VT	000	VERMONT
			WA	000	WASHINGTON STATE
			WI	000	WISCONSIN
			WV	000	WEST VIRGINIA
			WY	000	WYOMING
			XX	000	UNITED STATES
			XX	000	US NOS
			XX	000	USA NOS
			XX	121	AMERICAN SAMOA
			XX	121	SAMOA AMERICAN
			XX	999	UNKNOWN

APPENDIX J
CANSUR/NET 1.34
GEORGIA COUNTY CODES

<u>ABBV.</u> <u>ST.</u>	<u>COUNTY</u>	<u>CODE</u>
GA	BRYAN	029
GA	BULLOCH	031
GA	BURKE	033
GA	CHATHAM	051
GA	COLUMBIA	073
GA	EFFINGHAM	103
GA	EVANS	109
GA	JEFFERSON	163
GA	JENKINS	165
GA	MCDUFFIE	189
GA	RICHMOND	245
GA	SCREVEN	251

APPENDIX K

Acceptable Abstracting Abbreviations

AB, ab	abort, abortion
abd; abdom	abdomen
abn	abnormal
abs	absent
ACTH	adrenocorticotrophic hormone
ACVD	arteriosclerotic cardiovascular disease
AD	auris dextra (right ear)
ADH	antidiuretic hormone
adm; admit	admission; admit
AFB	acid fast bacillus
AGA	appropriate gestational age
AKA	also known as
alb	albumin
ALL	acute lymphocytic leukemia
ALS	amyotrophic lateral sclerosis
AMA	against medical advice
ANA	antinuclear antibody (laboratory study titer)
anom	anomaly
ANS	autonomic nervous system
ant	anterior
ante	before
AODM	adult onset diabetes mellitus
AP	anterior - posterior
Ap	apical
approx	approximately
ARBOW	artificial rupture bag of water
AROM	artificial rupture of membrane
AS	auris sinistra (left ear)
ASD	atrial septal defect
ASHD	arteriosclerotic heart disease
ASO	antistreptolysin O (laboratory study titer)
AU	aures unitas (both ears); auris uterque (each ear)
ausc	auscultate
AV	atrioventricular; arteriovenous
axill	axillary
Ba	barium
band	band neutrophil (white blood count - laboratory study)
baso	basophil (white blood count - laboratory study)
BBB	bundle branch block of the heart
BCP	birth control pill
BCP 23	biochemical profile (same as SMA 23)
BE	barium enema

BIH	bilateral inguinal hernia
bil; bilat	bilateral
bili	bilirubin
BM	bowel movement
BMR	basal metabolism rate
BOM	bilateral otitis media
BOW	bag of waters
BP; B.P.	blood pressure
BPD	bronchopulmonary dysplasia
BSO	bilateral salpingo-oophorectomy
BUN	blood urea nitrogen (laboratory study)
Bx	biopsy

C	centigrade
C1 - C7	cervical vertebrae 1-7
C & S	culture and sensitivity (laboratory study)
C section; c/s	cesarean section
C spine	cervical spine
Ca	calcium
CA; ca	carcinoma; cancer
CABG	coronary artery bypass graft
CAD	coronary artery disease
CAHD	coronary artery heart disease
CAN	cord around neck
CAT	computerized axial tomography
cath	catheter; catheterization
CBD	common bile duct
cc	cubic centimeter
CCU	coronary care unit
CDH	congenital dislocated hip
CF	cystic fibrosis
CHF	congestive heart failure
chol	cholesterol (laboratory study)
Chol	cholecystectomy
chr	chronic
CIS	carcinoma in situ
Cl	chlorine; chloride
CLL	chronic lymphocytic leukemia
CL	cleft lip
CL+P	cleft lip and palate
CLP	cleft palate
cm	centimeter
CML	chronic myelocytic leukemia
CMV	cytomegalovirus
CNS	central nervous system
c/o	complaints of
coag	coagulation
compd	compound

cong	congenital
COPD	chronic obstructive pulmonary disease
cor	heart
CPD	cephalopelvic disproportion
CP	cerebral palsy
CPK	creatinine phosphokinase (laboratory study)
CPR	cardiopulmonary resuscitation
CSF	cerebrospinal fluid
CST	contraction stress test
CT	computerized tomography (scan)
CV	cardiovascular
CVA	cerebral vascular accident; costovertebral angle
c/w	compatible with
Cx	cervix
CXR	chest x-ray
cysto	cystoscopy

D & C	dilatation and curettage
DC	discontinue; discharge
dd; DD	discharge diagnosis; developmental disability
deform	deformity
derm	dermatology
DES	diethylstilbestrol
DIC	disseminated intravascular coagulation
DIP	distal interphalangeal (joint)
DKA	diabetic ketoacidosis
DM	diabetes mellitus
DNA	deoxyribonucleic acid
DOA	dead on arrival
DOB	date of birth
DOD	date of death
DQE	dyapnea-on exertion
DP	dorsalis pedis (pulse)
DPT	diphtheria, pertussis, tetanus (vaccine)
dr	dram
DTR	deep tendon reflex
DU	duodenal ulcer
Dx	diagnosis

ECCD	endocardial cushion defect
ECG (EKG)	electrocardiogram
EDC	estimated date of confinement (pregnancy)
EEG	electroencephalogram
EKG (ECG)	electrocardiogram
EMG	electromyogram
ENT	ears, nose, throat
EOM	extraocular movement; extraocular muscles
eos	eosinophil (white blood count - laboratory study)

ER emergency room
 ESR erythrocyte sedimentation rate (laboratory study)
 eti etiology
 ETOH ethyl alcohol; ethanol
 ETP early termination of pregnancy
 EUA examination under anesthesia
 EXAM examination
 excis excision
 expl exploratory
 expl. lap exploratory laparotomy

F Fahrenheit
 FAS fetal alcohol syndrome
 FB; fb fingerbreadth; foreign body
 FBS fasting blood sugar
 F.H.; FHx family history
 FHR fetal heart rate
 FHT fetal heart tone
 fibrill fibrillation
 fl fluid
 FLK "funny looking kid" syndrome
 fluoro fluoroscopy
 FROM full range of motion
 FSH follicle-stimulating hormone
 FTP failure to progress
 FTT failure to thrive
 FUO fever of unknown origin
 Fx fracture

G gravida (followed by number indicating number of pregnancies)
~~GB gallbladder~~
 GC gonococcus (gonorrhea)
 GE gastroesophageal
 GER gastroesophageal reflux
 gest gestation
 GI gastrointestinal
 glu glucose (laboratory study)
 Gm; gm gram
 Grav gravida (number of pregnancies)
 GTT glucose tolerance test
 GU genitourinary
 GYN; gyn gynecology

h	hours
H & P	history and physical
HB; hgb	hemoglobin
HBP	high blood pressure, hypertension
HCG	human chorionic gonadotropin
hct	hematocrit
HEENT	head, eye, ears, nose, throat
H.M.	heart murmurs
HMD	hyaline membrane disease
hosp	hospital
hrs	hours
ht	height
HTN	hypertension
Hx	history
hyst	hysterectomy

I & D	incision and drainage
ICN	intensive care nursery
ICS	intercostal space
ICU	intensive care unit
Ig	immunoglobulin
IH	inguinal hernia
impress	impression
ing; inguin	inguinal
IQ	intelligence quotient
IRDS	idiopathic respiratory distress syndrome
irrig	irrigation
ITP	idiopathic thrombocytopenic purpura
IUD	intrauterine device
IUPD	intrauterine fetal demise
IUGR	intrauterine growth retardation
IUP	intrauterine pregnancy
IV	intravenous
IVP	intravenous pyelogram

JODM	juvenile onset diabetes mellitus
JRA	juvenile rheumatoid arthritis

K; K+	potassium (electrolytes - laboratory study)
KCl	potassium chloride
Kg; kg	kilogram
KUB	kidneys, ureters, bladder

L; l	liter
L	left
L & D	labor and delivery
L & W	living and well
L1 - L5	lumbar vertebrae 1-5
lab	laboratory
lap	laparotomy
lat	lateral
lb	pound
LBW	low birth weight
LCM	left costal margin
LDH	lactic dehydrogenase (laboratory study)
LFT	liver function test
LGA	large gestational age
LH	lutalizing hormone
LQ	lower inner quadrant (breast)
LLE	left lower extremity
LLL	left lower lobe (lung)
LLQ	left lower quadrant (abdomen)
LLSB	left lower sternal border
LMP	last menstrual period
LN	lymph node
loc	local
LOC	loss of consciousness
LOQ	lower outer quadrant (breast)
LP	lumbar puncture
LS	lumbosacral
LSB	left sternal border
LSK	liver, spleen, kidneys
lt	left
LUE	left upper extremity
LUL	left upper lobe (lung)
LUG	left upper quadrant (abdomen)
LV	left ventricular
LVH	left ventricular hypertrophy
lymph	lymphocyte (white blood count - laboratory study)
lytes	electrolytes (laboratory study)

m	meter
malig	malignant
mc	millicurie
MCA	multiple congenital anomalies
mcg	microgram
MCH	maternal - child health
MCL	midclavicular line
MCP	metacarpophalangeal (joint)
MD	medical doctor; muscular dystrophy
med	medication; medial

met; metas	metastases; metastatic
mg	milligram
Mg SO ₄	magnesium sulfate (medication)
MH; M.Hx	mental health; maternal history; marital history
MI	myocardial infarction
micro	microscopic
min	minute
ml	milliliter
mm	millimeter
MMC	meningomyelocele; myelomeningocele
mod	moderate; modified
mono	monocyte (white blood count - laboratory study); mononucleosis
mo, mos	month, months
MP	metacarpophalangeal; metatarsophalangeal (joint)
MR	mental retardation; medical records
MS	mid sternal line; multiple sclerosis
MTP	metatarsophalangeal (joint)
MVA	motor vehicle accident
Mx	microscopic
N & V	nausea and vomiting
Na	sodium (electrolyte - laboratory study)
NA	not applicable
NEC	not elsewhere classified; necrotizing enterocolitis
NED	no evidence of disease
neg	negative
Neuro	neurology
NG; N/G	nasogastric
ng	nanogram
NICU	neonatal intensive care unit; neurological intensive care unit
nl	normal
nl	normal
noct; noc	nocturnal; night
NOS	not otherwise specified
NPC	no prenatal care
NS	not stated; normal saline
NSR	normal sinus rhythm (heart); nasoseptal reconstruction
NST	nonstress test
NSVD	normal spontaneous vaginal delivery
N/V	nausea and vomiting

O ₂	oxygen
OB	obstetrics
ob/gyn	obstetrics and gynecology
OBS	organic brain syndrome
OC	oral contraceptive
OCB	oral cholecystogram (gallbladder x-ray study)
OCT	oxytocin challenge test
OD	oculus dexter (right eye)
OM	otitis media
OP; op	operation; outpatient
OPD	outpatient department
ophth	ophthalmology
OR	operating room
ortho	orthopedics
OS	oculus sinister (left eye)
os	opening
OT	occupational therapy
OTOL	otology
OU	oculi unitas (both eyes); oculus uterque (each eye)
oz	ounce

P	pulse; para (followed by number indicating number of live births)
PA	posterior-anterior; pernicious anemia
PAC	premature atrial contraction (heart)
palp	palpable
PAP	Papanicolaou test or smear (laboratory study)
para	number of previous live births
PAT	paroxysmal atrial tachycardia
path	pathology
PBI	protein-bound iodine (laboratory study)
PCO ₂	carbon dioxide pressure (blood gas—laboratory study)
PDA	patent ductus arteriosus
PE	physical examination; pulmonary embolus
PED(S)	pediatric(s)
PFC	persistent fetal circulation (same as PTC - prolonged transitional circulation)
PFO	patent foramen ovale
PFT	pulmonary function test
pg	pregnant
PH; P.Hx	past or prior history
phos	phosphorus (laboratory study)
PHPV	persistent hyperplastic primary vitreous
PIA	prolonged infantile apnea
PID	pelvic inflammatory disease
PIP	proximal interphalangeal (joint)
PKU	phenylketonuria
PM; p.m.	post mortem; post meridian (afternoon - evening)

PMD	private medical doctor
PMH	past medical history
PMP	previous menstrual period
pO ₂	oxygen pressure (blood gas - laboratory study)
POL	premature onset of labor
pos	positive
poss	possible
post	posterior
PP	postpartum
ppd	pack per day (cigarettes)
PPD	purified protein derivative (tuberculin)
PPTL	post partum tubal ligation
PRBOW	premature rupture bag of waters
preop	preoperative
prep	preparation
prob	probable
procto	proctoscopy
PROM	premature rupture of membranes
pro time	prothrombin time (laboratory study)
PSRBOW	premature spontaneous rupture bag of waters
psych	psychiatry; psychology
pt	patient
PT	physical therapy; prothrombin time (laboratory study); posterior tibial (pulse)
PTA	prior to admission
PTC	prolonged transitional circulation
PTL	postterm labor
PTT	partial thromboplastin time (laboratory study)
PUD	peptic ulcer disease
PVC	premature ventricular contraction (heart)
PX	physical examination

Q	quadrant
q	quaque (every); long arm of a chromosome
q am	every morning
qd; qd	every day
q hs	every night before sleep
qid	quarter in die (four times a day)
qod	every other day
q pm	every afternoon
qt	quant

R	respiration; right
RA	rheumatoid arthritis
RBC	red blood cell
RCM	right costal margin
RDS	respiratory distress syndrome
REM	rapid eye movement
RES	reticuloendothelial system
retic	reticulocyte (white blood count - laboratory study)
RF	rheumatic fever
Rh	rhesus factor in blood
RHD	rheumatic heart disease
RIQ	right inner quadrant (abdomen)
RLE	right lower extremity
RLF	retrolental fibroplasia
RLI	right lower lobe (lung)
RLQ	right lower quadrant (abdomen)
RML	right middle lobe (lung)
RNA	ribonucleic acid
R/O	rule out
ROM	range of motion; rupture of membranes
ROP	retinopathy of prematurity
ROQ	right outer quadrant (abdomen)
ROS	review of systems; review of slides
RSR	regular sinus rhythm (heart)
rt	right
RUE	right upper extremity
RUL	right upper lobe
RUQ	right upper quadrant
RV	rectovaginal
RVH	right ventricular hypertrophy
Rx	prescription; therapy; treatment

S1 - S4	systolic heart sounds
S1 - S5	sacral vertebrae 1-5
SA	sinoauricular (node)
Sa; sarc	sarcoma
SAH	subarachnoid hemorrhage
SBE	subacute bacterial endocarditis
SC	sternoclavicular (joint)
SCV	supraclavicular
sed rate	sedimentation rate (laboratory study)
seg	segmented neutrophil (white blood count - laboratory study)
SEM	systolic ejection murmur
SGA	small gestational age
SGOT	serum glutamic oxaloacetic transaminase (laboratory study)
SGPT	serum glutamic pyruvic transaminase (laboratory study)
SH; SHx	social history
SI	sacroiliac

sib(s)	sibling(s)
SIDS	sudden infant death syndrome
SLE	systemic lupus erythematosus
SMA12;	
SMA 12/60;	
SMA23	sequential multiple analysis (laboratory study)
S & O	salpingo-oophorectomy
s & s	signs and symptoms
SOB	shortness of breath
SOL	spontaneous onset of labor
SP	suprapubic
s/p	status post
spec	specimen
sp. gr	specific gravity
SQ	social quotient; subcutaneous
sq cell ca	squamous cell carcinoma
SR	sedimentation rate; surgical removal
SROM	spontaneous rupture of membranes
staph	staphylococcus (microorganism)
staph epi	staphylococcus epidermidis (microorganism)
STD	sexually transmitted disease
strep	streptococcus (microorganism)
sub-q	subcutaneous
surg	surgery
SVC	superior vena cava
SVD	spontaneous vaginal delivery
Sx	symptoms
syst	systolic
Sz	seizure

T	temperature
T1-T12	thoracic vertebrae 1-12
T & A	tonsillectomy and adenoidectomy
T & T	tympanotomy with tube placement
TAB	therapeutic abortion
tachy	tachycardia (heart)
TAH	total abdominal hysterectomy
TAH BSO	total abdominal hysterectomy and bilateral salpingo-oophorectomy
TAPVR	total anomalous pulmonary venous return
TB	tuberculosis
TBA	to be adopted
TE	tracheoesophageal
TEF	tracheoesophageal fistula
temp	temperature
TGA	transposition of great arteries
TBV	transposition of great vessels
THR	total hip replacement
TIA	transient ischemic attack

TIBC	total iron-binding capacity (laboratory study)
tid	ter in die (three times a day)
TL	tubal ligation
TM	tympanic membrane
TMJ	temporomandibular joint
TNTC	too numerous to count
TOA	tubo-ovarian abscess
TOF	tetralogy of fallot
TORCH	toxoplasmosis, rubella, cytomegalovirus, herpes (syphilis)
TP	total protein (laboratory study)
trach	tracheotomy
TSH	thyroid stimulating hormone
TTN	transient tachypnea of newborn
TUR	transurethral resection
turb	turbinate
TURBN	transurethral resection of bladder neck
TURBT	transurethral resection of bladder tumor
TURP	transurethral resection of prostate
U	unit
UA	urinalysis
UCHD	usual childhood diseases
UCHI	usual childhood illnesses
UDT	undescended testicle
UGI	upper gastrointestinal series
UH	umbilical hernia
UIQ	upper inner quadrant (breast)
umb	umbilical
unilat	unilateral
UOQ	upper outer quadrant
UPI	uteroplacental insufficiency
UPJ	uteropelvic junction
URI	upper respiratory infection
urol	urology
US, U/S	ultrasound
UTI	urinary tract infection
UVJ	uterovesical junction
vag	vaginal
VD	venereal disease
VDRL	test for syphilis, named for Venereal Disease Research Laboratory
VLBW	very low birth weight
VS, vs	versus
VSD	ventricular septal defect
VT; V tach	ventricular tachycardia
vtx	vertex

WBC white blood count (part of CBC - laboratory study);
white blood cells
WD; w/d well developed
WF white female
WISC Wechsler Intelligence Scale for Children
WM white male
WN; w/n well nourished
WNL within normal limits
WPW Wolfe-Parkinson-White Syndrome
WPPSI Wechsler Preschool Primary Scale of Intelligence
wt weight

X times
XT exotropia

Y/O; y.o years old

APPENDIX L

		Participating Hospitals Codes
Record#	HOSPITNB	HOSPITNM
9	370000	At Home
11	370010	Abbeville County Memorial Hospital
12	370020	HCA Aiken Regional Med Ctr
13	370030	Anderson Memorial Hospital
14	370045	Bamberg County Memorial Hospital
15	370048	Barnwell County Hospital
16	370050	Beaufort Memorial Hospital
17	370055	Naval Hospital Beaufort
18	370060	Marlboro Park Hospital
19	370065	Lee County Memorial Hospital
20	370070	Kershaw County Memorial Hospital
3	370080	Baker Hospital
21	370081	Charleston Memorial Hospital
22	370085	Musc Mc Of Medical Univ Of Sc
24	370090	Roper Hospital
25	370100	St.francis Xa Vier Hospital
27	370103	Veterans Admin Med Cntr
29	370110	Chester County Hospital
30	370120	Bailey Memorial Hospital
33	370140	Richland Memorial Hospital
32	370170	Providence Hospital
31	370190	Baptist Medical Center
34	370210	Wm Jennings Bryan Dorn Vet Hospital
35	370230	Conway Hospital
26	370232	Trident Regional Med Cntr
36	370235	Southland Medical Center
37	370237	Wilson Clinic And Hospital
38	370240	St.eugene Community Hospital
40	370243	Edgefield County Hospital
39	370244	Baptist Medical Center Easley
41	370245	Allendale County Hospital
42	370247	Bruce Hospital Ysystem
44	370260	Mcleod Regional Medical Center
43	370265	Florence General Hospital
45	370280	Moncrief Army Community Hospital
46	370290	Cherokee Memorial Hospital
47	370295	Georgetown Memorial Hospital
48	370320	Greenville Hospital System
50	370330	St.francis Hospital
49	370340	Shriners Hos For Crpld Childrn

51	370350	W J Barge Memorial Hospital
52	370375	Self Memorial Hospital
53	370378	Allen Bennett Memorial Hospital
54	370380	Byerly Hospital
55	370390	Hilton Head Hospital
56	370411	Williamsburg Cnty Memorial Hospital
57	370416	Lower Florence County Hospital
58	370430	Elliott White Springs Memorial Hospital
59	370440	Laurens District Hospital
60	370443	Hope Hospital
61	370444	Loris Community Hospital
62	370445	Clarendon Memorial Hospital
63	370447	English Park Medical Center
64	370448	Marion Memorial Hospital
65	370460	Amieast Cooper Community Hospital
66	370470	Mullins Hospital
67	370477	HCA Grand Strand General Hospital
1	370480	Us Air Force Hospital
23	370490	Naval Hospital
28	370495	Chesterfield General Hospital
2	370500	Newberry County Memorial Hospital
4	370520	Regional Med Ctr Of Orangeburg
5	370540	Cannon Memorial Hospital
6	370549	Low Country General Hospital
7	370580	Ami Piedmont Medical Center
8	370590	Oconee Memorial Hospital
69	370595	Hillcrest Hospital
71	370600	Mary Black Memorial Hospital
70	370605	Ami Doctors Memorial Hospital
72	370610	Spartanburg Regional Medical Center
73	370640	Tuomey Hospital
68	370645	Us Air Force Hospital Shaw
74	370650	North Greenville Hospital
75	370660	Wallace Thomson Hospital
76	370665	Hampton General Hospital
77	370670	Colleton Regional Hospital
78	370671	Lexington Medical Center
79	370675	Fairfield Memorial Hospital
80	370677	B J Workman Memorial Hospital
81	370685	Divine Saviour Hospital
82	370994	Unspecified Out Of State Hospital
83	370995	Non-hospital, Nos
84	370996	Physician Only
85	370998	Unspecified State Hospital
86	370999	Unknown Hospital

10 379999 Not Stated

APPENDIX M

Procedures For Abstracting Adopted and Foster Children

Procedure for Abstracting Adopted Children

<u>Column Number</u>	<u>Instructions</u>
Patient's name	Enter "Adopted"
Mother's Name	Enter "Adopted"
Residence at Birth	Enter "Adopted" (Note: Record the street address on a separate piece of paper to give to the statistical assistant for determining the correct census tract. The address will not be entered into the computer file; it will be destroyed)
Father's Name	Enter "Adopted"
City	Enter the natural mother's city of residence
County	Enter the natural mother's county of residence
Zip	Enter the natural mother's zip of residence
Home Phone	Code 888-8888
Chart Number: Mother	Code 8888888888
Chart Number: Infant	Code 8888888888

Procedure for Abstracting Foster Children

Foster children are to be abstracted as a usual case except that "FOSTER CHILD" should be written in the Abstractor's Note (BDR Case Report Form; See appendix P, page 2.)

APPENDIX N
Prenatal Diagnostic Test Codes

Record#	PRECDNB	PRECDNM
1	01	Maternal Serum Afp Determination [02]
2	02	Amniocentesis [01,03,04,05,10]
3	03	Chorionic Villus Sampling [01,04,05]
4	04	Diagnostic Ultrasound [07,07]
5	05	Fetal Echocardiography [07]
6	06	Cordocentesis Or Percutaneous Umbilical Blood Sampling (pubs)
		[01,04,05,09]
7	07	Radiography [07]
8	08	Fetal Dye Studies [07]
9	09	Fetoscopy [07]
10	10	Fetal Surgery [08]
11	88	Other
12	89	Nos

Case Finding Control Sheet

Date: _____

Hospital Name: _____

Baby Name	MRN	Mother Name	MRN	Complications	Review	Date

Appendix P: Case Report

Page 1	Abstraction Section
Page 2	Demographic Section
Page 3	Birth Information Section
Page 4	Other Hospital Admission Section
Page 5	Medical and Family History Section
Page 6	Previous Pregnancies Section
Page 7	Prenatal Diagnostic Procedures Section
Page 8	Prenatal Medication Section
Page 9	Prenatal Complications Section
Page 10	Postnatal Complications Section
Page 11	Physical Examinations Section
Page 12	Postnatal Diagnostic Procedures Section
Page 13	Birth Defects Section

SRRHIS Birth Defect Case Report

ID:

P1: Abstraction Section

Order No.:

State:

Abstracted On:

Hospital:

Abstracted By:

Department:

Mother's Chart:

Baby's Chart:

Committed On:

Mother's Last Name:

Mother's Last Name:

Mother's SSN:

Mother's Race:

Mother's Address:

Baby's Last Name:

Baby's First Name:

Baby's Middle Name:

Baby's SSN:

Baby's Birthday:

Baby's Sex:

Baby's Age Section:

Warranting Condition 1:

2:

3:

4:

With Birth Defects:

SRRHIS Birth Defect Case Report

ID:

P2: Demographic Section

Last Name: **First Name:** **Middle Name:**
Former Name: **Other Surname:**
Birth Day: **SSN:**
Race: **Ethnicity:**
State: **County:**
Address: **City:**
Zip: **Home Phone:**
Marital Status: **Education Year:** 0
Work Place: **Work Phone:**

Last Name: **First Name:** **Middle Name:**
Birthday: **SSN:**
Race: **Ethnicity:** **Education Year:** 0
State: **County:** **City:**
Address:
Zip: **Home Phone:**
Work Place: **Work Phone:**

Last Name: **First Name:** **Middle Name:**
Relation with the Baby:
State: **County:** **City:**
Address: **Zip:**
Home Phone: **Patient Lives With:**

SRRHIS Birth Defect Case Report

ID:

P3: Birth Information Section

Baby's LastName:

FirstName:

Mid.Name:

Birthday:

SSN:

Sex:

Birth Hospital:

Obstetrician's Last Name:

First Name:

Phone:

Pediatrician's Last Name:

First Name:

Phone:

Mother's Chart:

Baby's Chart:

Weight: 0 lb 0.0 oz = 0 g

Head Circumference: 0.0 in = 0.0 cm

Chest Circumference: 0.0 in = 0.0 cm

Length: 0.0 in = 0.0 cm

APGAR(1min): 0

APGAR(5min): 0

Delivery:

Plurality:

	Outcome	Sex	Concordance
Twi			
Triplet			

Gestation Age: 0 Weeks

Type of Exam:

Ultrasound Date: .

Ultrasound Dating: 0 Weeks

LMP Date:

EDC Date:

Expired:

Date:

Place:

Autopsy:

Autopsy Result:

Mother's Total Previous Pregnancies: 0

SRRHIS Birth Defect Case Report

ID:

P4: Other Hospital Admissions Section

No.: Hospital:

Abstracted by:

Department:

Abstracted by:

Mother's Chart No.:

Baby's Chart No.:

Date of Admission:

Date of Discharge:

Description:

No.: Hospital:

Abstracted by:

Department:

Abstracted by:

Mother's Chart No.:

Baby's Chart No.:

Date of Admission:

Date of Discharge:

Description:

No.: Hospital:

Abstracted by:

Department:

Abstracted by:

Mother's Chart No.:

Baby's Chart No.:

Date of Admission:

Date of Discharge:

Description:

No.: Hospital:

Abstracted by:

Department:

Abstracted by:

Mother's Chart No.:

Baby's Chart No.:

Date of Admission:

Date of Discharge:

Description:

No.: Hospital:

Abstracted by:

Department:

Abstracted by:

Mother's Chart No.:

Baby's Chart No.:

Date of Admission:

Date of Discharge:

Description:

SRRHIS Birth Defect Case Report

ID:

P5: Medical and Family History Section

No. Member:

Description:

Condition Code:

Date of Onset:

Condition End Date:

Birth Defect Code:

BD Cata.1:

BD Cata.2:

BD Cata.3:

No. Member:

Description:

Condition Code:

Date of Onset:

Condition End Date:

Birth Defect Code:

BD Cata.1:

BD Cata.2:

BD Cata.3:

No. Member:

Description:

Condition Code:

Date of Onset:

Condition End Date:

Birth Defect Code:

BD Cata.1:

BD Cata.2:

BD Cata.3:

SRRHS Birth Defect Case Report

ID:

P6: Previous Pregnancies Section

Total Number of Previous Pregnancies: 0	Total Number of Still Birth:	0
	Total Number of Live Birth:	0
	Total Number of Spontaneous Abortion:	0
	Total Number of Induced Abortion:	0
	Total Number of Unspecified Abortion:	0
	Total Number of Not Stated Delivery:	0

No.	Pregnancy No. 0	Delivery Date:
Sex:		Weight: 0 (g) = 0 (lb) 0.0 (oz)
Gestational Age:	0 (weeks)	Outcome:
Plurality:		

No.	Pregnancy No. 0	Delivery Date:
Sex:		Weight: 0 (g) = 0 (lb) 0.0 (oz)
Gestational Age:	0 (weeks)	Outcome:
Plurality:		

No.	Pregnancy No. 0	Delivery Date:
Sex:		Weight: 0 (g) = 0 (lb) 0.0 (oz)
Gestational Age:	0 (weeks)	Outcome:
Plurality:		

No.	Pregnancy No. 0	Delivery Date:
Sex:		Weight: 0 (g) = 0 (lb) 0.0 (oz)
Gestational Age:	0 (weeks)	Outcome:
Plurality:		

No.	Pregnancy No. 0	Delivery Date:
Sex:		Weight: 0 (g) = 0 (lb) 0.0 (oz)
Gestational Age:	0 (weeks)	Outcome:
Plurality:		

SRRHIS Birth Defect Case Report

ID:

P7: Prenatal Diagnostic Procedures Section

No. **Procedure:**
Date: **Purpose:**
Place:
Outcome:
Specific Result:

No. **Procedure:**
Date: **Purpose:**
Place:
Outcome:
Specific Result:

No. **Procedure:**
Date: **Purpose:**
Place:
Outcome:
Specific Result:

No. **Procedure:**
Date: **Purpose:**
Place:
Outcome:
Specific Result:

No. **Procedure:**
Date: **Purpose:**
Place:
Outcome:
Specific Result:

SRRHIS Birth Defect Case Report ID:

P8: Prenatal Medication Section

No.	Description of Medication	Beginning Date	Ending Date	Trimester

SRRHS Birth Defect Case Report

ID:

P9: Prenatal Complications Section

No. Complication Group:

Complication Name:

Description:

Date of Onset:

Trimest:

Resolved Date:

No. Complication Group:

Complication Name:

Description:

Date of Onset:

Trimest:

Resolved Date:

No. Complication Group:

Complication Name:

Description:

Date of Onset:

Trimest:

Resolved Date:

No. Complication Group:

Complication Name:

Description:

Date of Onset:

Trimest:

Resolved Date:

No. Complication Group:

Complication Name:

Description:

Date of Onset:

Trimest:

Resolved Date:

SRRHS Birth Defect Case Report

ID:

P10: Postnatal Complications Section

No. Complication:

Description:

Onset:

Resolved:

No. Complication:

Description:

Onset:

Resolved:

No. Complication:

Description:

Onset:

Resolved:

No. Complication:

Description:

Onset:

Resolved:

No. Complication:

Description:

Onset:

Resolved:

No. Complication:

Description:

Onset:

Resolved:

SRRHIS Birth Defect Case Report

ID:

Pl1: Physical Examinations Section

No. Date: Place:

Speciality Code:

Outcome:

Result:

Physician's Last Name:

First Name:

No. Date: Place:

Speciality Code:

Outcome:

Result:

Physician's Last Name:

First Name:

No. Date: Place:

Speciality Code:

Outcome:

Result:

Physician's Last Name:

First Name:

No. Date: Place:

Speciality Code:

Outcome:

Result:

Physician's Last Name:

First Name:

No. Date: Place:

Speciality Code:

Outcome:

Result:

Physician's Last Name:

First Name:

SRRHIS Birth Defect Case Report

ID:

P12: Postnatal Diagnostic Procedures Section

No. Date: Procedure Name:
Site: Place:
Outcome:
Specific Result:

No. Date: Procedure Name:
Site: Place:
Outcome:
Specific Result:

No. Date: Procedure Name:
Site: Place:
Outcome:
Specific Result:

No. Date: Procedure Name:
Site: Place:
Outcome:
Specific Result:

No. Date: Procedure Name:
Site: Place:
Outcome:
Specific Result:

No. Date: Procedure Name:
Site: Place:
Outcome:
Specific Result:

SRRHIS Birth Defect Case Report

ID:

P13: Birth Defects Section

No. Description:

Certainty:

Class:

Birth Defect Code:

Status:

BD Cata.1:

BD Cata.2:

BD Cata.3:

Prenatal DX:

Postnatal DX:

Physycal Exam:

No. Description:

Certainty:

Class:

Birth Defect Code:

Status:

BD Cata.1:

BD Cata.2:

BD Cata.3:

Prenatal DX:

Postnatal DX:

Physycal Exam:

No. Description:

Certainty:

Class:

Birth Defect Code:

Status:

BD Cata.1:

BD Cata.2:

BD Cata.3:

Prenatal DX:

Postnatal DX:

Physycal Exam:

APPENDIX C

Savannah River Region Health Information System

Summary of cases and pending cases as of August 1995

Summary of cases and pending cases as of August 1995

Hospital	Number of Patients Reviewed in Logs		Number of Medical Record screened Mother's & Baby	Number of Cases	
	1994	1995		Pending	Birth Defect
1	1066	695	294	2	1
2	128	94	72	3	1
3	126	50	176	3	1
4	1066	892	56	4	3
5	340	175	96	1	2
6	1397	962	354	7	3
7	1229	832	292	2	5
8	81	62	58	8	2
9	403	212	54	1	3
10	1402	601	97	6	15
11	1009	599	132	to be reviewed	

APPENDIX D

**Savannah River Region Health Information System
Birth Defects Registry**

User's Guide for Data Entry Forms

October 1995

Savannah River Region Health Information System

Birth Defect Registry

User's Guide for
Data Entry Forms

Department of Biometry and Epidemiology
Medical University of South Carolina

October 1995

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**Savannah River Region Health Information System
Birth Defect Registry**

User's Guide for Data Entry Forms

Chapter I: How to Install, Start and Quit the BDR Program

This Birth Defect Registry program is designed for the Savannah River Region Health Information System. The database structure is based on the Metropolitan Atlanta Congenital Defects Program provided by CDC.

To Install the BDR Software

1. Be sure that the FoxPro for Windows 2.6 is installed in C:\FPW26.
2. Copy all files on disks 1, 2, 3, and 4 to C:\ with the same sub-directory. A simple way to do this work is to drag A: to C: in the Windows File Manager Environment.
3. Add a new program group with name of "Birth Defect Registry".
4. Add two new program items. Their properties are as follows:

Description:	Case Record Input	System Codes Edit
Command Line:	c:\fpw26\foxprow.exe c:\fpw26\bdr.prg	bdrsys.prg
Working Directory:	c:\fpw26	c:\fpw26
Shortcut Key:	none	none

To Start the BDR Program

1. Insert the KEY DISK in drive A.
2. Double click the icon of the program item "Case Record Input". This operation opens the main menu for case record input.
3. Click the button with a book icon on it. This operation checks the KEY DISK in order to sure the user is valid.
4. Click the items on the main menu.

To Quit the BDR Program

1. Insert the KEY DISK in drive A.
2. Click the button with an EXIT icon on it. This operation updates the KEY DISK. If you fail to do so, the information you added or edited will be lost.

Chapter 2: General Instructions for Form Operation

1. Enabled and Disabled Objects

Forms are the most important interface between users and the database system. A form is composed by *function keys*, like *Save*, *Search*, *Exit*, etc., and *data fields* specially arranged on the screen. A *function key* will do a certain job when it is clicked on with the mouse, or when the [Enter] key is pressed while the cursor is located at this function key. *Data fields* are where we enter data. There are two working states for function keys and data fields: enabled and disabled. Work can only be done on enabled objects. The cursor can not be moved into a disabled object. Mouse clicks will cause nothing when the *function key* is currently disabled. The states of the objects can be changed during the operation by the program.

2. Obligatory Fields, Formatted Fields and Free Fields

Data fields that must contain information are called *obligatory fields*. A set of *obligatory field* is designed for every table, to ensure consistency. Data entered in the *formatted fields* must be in a certain format. For example, zip codes must be 5 digits, state abbreviations must be two letters and dates should be something like 12-12-95. Wrongly formatted data will be rejected by the program. Fields that may or may not have data are called *free fields*.

3. Moving the Cursor

Press [Tab] will bring the cursor to the next data field. If the field is fixed-length, then as soon as it is entered without error, the cursor will automatically move to the next field with a beep. All coded fields are fixed-length. Don't use the [Enter] key to move the cursor. With data fields, it works the same as the [Tab], but with function keys, it works the same as a mouse click. To avoid mistake, it is a good custom to move cursor always using [Tab]. To move the cursor to the previous field, hold [Shift] and then press [Tab]. A mouse click can set the cursor at any enabled field or function key you want. The cursor will not move away when the entry in the current field is wrong or an empty block is left for a obligatory field, even if you click the *Abort* or *Exit* key. In this case, enter a data in correct format and valid range. For example:

Pop-Up List: Pick any item.
Date: Enter a reasonable date.
Name: Enter UNKNOWN, or anything else.

4. Pop-Up List

When a field contains two blocks on the screen, the first block is the code area for the field, and the other is the name area. The name block is always disabled, characterized by a light color. If a valid code is entered into the code area, the corresponding name will appear at the name area automatically. If the code is wrong, i.e., there is no such code value in the coding table, then a list with names will be popped up at the upper left corner of the screen. When the cursor is going to leave an obligatory field while it is currently empty, the pop-up list will also display. To make a choice in the pop-up list, you need just click the correct item. If the code area is presently not empty, and you want to change the code, a short cut way is to enter a *wrong code*, for example, *q*, or any other letter, and then press [Tab]. The pop-up list will disappear when an item is selected by the mouse, and the cursor will move to the next field at the same time.

5. System Help Message and Window Error Message

During operation, particularly for beginning users, it's a good method to get help from the help message at the bottom of the screen. These message varies with the current cursor position. The window error message will appear at the top right corner of the form with a beep when a data error occurs. Some window help messages are designed to be *No Wait*: they will disappear when a mouse moved or any key is pressed. Other window help messages are designed to be *Wait*: they will stay on until any key is pressed or the mouse is clicked(not just moved). If you want review the *No Wait* error message, press [Tab] without moving the mouse.

Chapter 3: Abstraction and Case Finding Form

Normally, you start your work with this form. On this form, there are three *data fields* areas and two *function keys* areas. The *data fields* areas include fields for abstraction information, mother's information and baby's information. At the right side of the screen, there are eleven *function keys*, used to manager the operation of the form. At the bottom of the form, there is a set of sorting factor keys, used to put the case records in specified orders according to the value of the sorting factor.

The *Fox* is a very active function key. It appears in almost every forms, though the function may different. In this form, at the adding mode, the *Fox* key will bring a default set of information to the screen, including the *Order Number*, *Abstraction State*, *Abstraction Hospital*, *Abstractor Initials*, *Screening Date*, *Mother's Residence State*, *County*, *City*. The *Order Number* is exactly one (1) more than that of the previous case record. You can change it when needed, but no duplicate values are permitted. When you change the default *Order Number* and happen to use a value which has been already used in another case record, a warning message will appear at the up right corner and the cursor will stay at the *Order Number* field asking for a proper value. After the *Fox* is clicked, it is disabled and the cursor is moved to the data field of *Order Number*. It is suggested that you change the *Order Number* value at the first time using this software in a year, to begin with the two digits of the year number. For any other case, you can accept the default value.

During the process of adding or editing a case record, the *Abort* key is always enabled. Clicking this key will disable all data fields and enable the four navigation keys and *Add*, *Edit*, *Exit*.

This is the *Top* key. To understand the function of the navigation keys well, it is helpful to remember that, in the database table, records are arranged according to their values of *Order Number* in the descending order. The record with the largest *Order Number* value is placed at the top of the table and the record with the smallest *Order Number* is placed at the bottom of the table. Therefore, Clicking *Top* will bring the record with the largest *Order Number* to the screen. Normally, it is the last record registered. Navigating keys can be clicked several times. They do not disable after being clicked. The only two exceptions occur at the two ends of the table: when the present record is the first one, the *Prior* key will be disabled, and when the present record is the last one, the *Next* key will be disabled.

The *Next* key brings the record with the next smaller value of *Order Number* to the screen for editing. If the *Next* key is clicked at the bottom of the table, it will be disabled.

The *Prior* key brings the record with the next larger value of *Order Number* to the screen for editing. If the *Prior* key is clicked at the top of the table, it will be disabled.

The *Locate* key is designed for fast searching of the record you want to edit. When the *Locate* key is clicked, a pop-up list will appear at the left corner of the screen with *Order Number* values on it. You can select any one by mouse. If the pop-up list is too small to hold the *Order Number* of all records, you can click the up, down keys just beside the right edge of the list. The pop-up menu list will disappear when a choice is made. The *Locate* key will work efficiently when it is combined with *Next* and *Prior*, because the pop-up list contains only one field, while the other two keys will bring a full screen information.

Add a new case record. Clicking *Add* key will set the form to the *adding mode* and enable *For*, *Abort*, *Exit* keys and all data fields, and at the same time, disable all the other function keys include *Add* itself.

Edit an existing case record. This key is initially disabled. Clicking this key will set the system to the *editing mode* and enable *Top*, *Next*, *Prior*, *Locate*, *Abort* and *Exit* keys and all data fields, and at the same time disable all other keys including *Edit* itself.

At any time, clicking *Exit* will stop the present adding or editing without saving and back to the system's main menu.

The **Save** key is enabled in both adding and editing mode only when the obligatory fields are filled with proper data. The obligatory fields for this form are *Case Identification Number*, *Abstraction State*, *Abstraction Hospital*, *Mother's Race*, *Baby's Birthday*, *Baby's Sex*, and *Reportable or Not*. Saving a reportable case record will enable the **Commit** key. Saving a not reportable case record will clear the screen, going to work on the next record. Clicking **Save** for a not reportable case record will disable all function keys except **Abort**, **Exit** and **Fox** for adding mode, or navigation keys for editing mode.

The **Commit** key (with the icon of a book) transfers the current case record in to the reportable case table, so you can continue work on this record at the following forms. Clicking **Commit** will disable all function keys except **Abort**, **Exit** and **Fox** for adding mode, or navigation keys for editing mode.

Operation Procedures

Adding a New Case Record:

1. Click **Add**. If **Add** is disabled, click **Abort** which is always enabled.
2. Click **Fox**, to bring the default information set to the screen.
3. Enter the detail fields. For coded fields, you can enter the code directly if it is familiar to you. For example, the sex code is "1" for male, and "2" for female. More often, if you want make a choice from the pop-up list, press "q", and then press **Tab**. The only reason we use "q" is it's the closest key near **Tab**. Any other letter key does the same job.
4. If the case is reportable, i.e., the patient is a case of birth defect in the Savannah River Region, select "Yes". Otherwise, select "No", and choose the reason for "not reportable" in the warranting conditions.
5. After all data fields are finished, click **Save**. If the case is reportable, the **Commit** key, with the icon of a book, will be enabled. Click **Commit**, to get a *Case ID* number of the case.

Edit an Old Case Record:

The editing function of the abstracting and case finding form is designed only for cases presently "not reportable". For reportable cases, editing functions are available in the other forms.

1. Sort the case records according to the values of a factor you know best about the target case. The factor can be the abstraction hospital, the mother's name, or social security number, the baby's name or social security number. Originally, cases are sorted by the *Order Number*.
2. Click the navigation keys to find the case record needed editing.
3. Click **Edit**. If **Edit** is currently disabled when the target record is loaded on the screen, it means this case record is reportable and already committed, so can not be modified here.

- 4, Use the mouse to set the cursor to the data fields that need editing, and enter the new values.
- 5, Click *Save*.
- 6, Click *Commit*, if the case is reportable.

Case Finding:

- 1, Set order to Hospital.
- 2, Click *Locate*, which has the icon of a magnifying glass. Select the target hospital name. If there is no case abstracted in this hospital, there will be a message display on the screen. If the computer does find some cases abstracted in this hospital, it will bring the first case to the screen, and enable the *Case List* and *Print List* enable.
- 3, Click *Case List* to view basic information of the cases on the browse screen. Click the *t* button on the up-right corner of the browse screen to close the browse screen.
- 4, Click *Print List* will send the case list to the printer.

Obligatory fields for this form are:

- case order number
- abstraction state
- abstraction hospital
- mother's last name
- mother's race
- baby's birthday
- baby's sex

Chapter 4: Working on the Three Single Record Forms

For each reportable case, we have three single record forms and ten multiple record forms. The three single record forms are (1) demographic information form one, which contains fields about the mother and baby, (2) demographic information form two, which contains fields about the father and other contact, and (3) the birth information form, which contain fields about detailed information of the baby's birth. The operation procedure for these three forms are similar to each other. Although we are adding information to the database, we do not add a new record. The case record has already been added into the database when it was committed in the abstraction and case finding form, although most fields of the record are empty at that stage. What we do in the three single record forms is to edit these empty fields. The first thing to do is to find out the target case record.

When you open any of the three single record form, the case appears on the screen is the one we worked on previously at any other forms, including the abstraction and case finding form. Here we use the technique of default working record. When we save any work for a specific case record, the computer memorizes the *Case ID*. When we open any form, the record with this *Case ID* is shown. So, we do not need to find the target record for each form operation.

When the single record form is open, you will find that descriptions for all coded fields are empty. Click *Fox* will bring the corresponding descriptions for the coded fields that are not empty.

If the present record is not your target record, you can use navigation keys to search. The most convenient way is to search the target record at the abstraction and case finding form.

When you found the target record, all data fields are disabled. Click *Fox* will enable the data fields for editing. Some fields remain disabled because they are not editable.

After entering data in proper fields, you need to save your work. The function key *Save* is enabled only when a certain set of obligatory fields is filled with proper data. The following are specifics for different single record forms.

P1. Demographic Information (1)

When the state of the mother's resident is modified, the county will become empty, and when the county is changed, the city will become empty. This design is aimed at avoiding mismatch of the geographic regions. All counties are correspondent states respectively, and all cities are belong to individual counties.

Obligatory fields for this form are:

- abstraction hospital
- mother's last name
- mother's race
- baby's birthday
- baby's sex

P2. Demographic Information (2)

If the father is living together with the mother, you can input "Y" in the field *Same Home As Mother*. It will bring the mother's state, county, city, home phone, home zip, and home address to the father's.

At the bottom of the form there is an area designed for *Abstract's Note*. Here you can type notes, comments and any other messages. The length of the field is 1000 characters.

There is *no obligatory field* in this form. This means you can left all the fields empty.

P3. Birth Information

For the birth weight, length, head circumference, and chest circumference, both metric unit system and English unit system can be used. The program will translate the data from one system to the other.

The table for multiple birth information is designed for multiple birth only. For situation of singleton birth, all fields in this table will be passed.

If the patient died, the date, place(hospital), autopsy (yes or no) and autopsy result can be entered. Otherwise, these four fields will be passed.

Obligatory fields for this form are:

 baby's birth hospital
 delivery type of the birth
 baby died or not

Chapter 5: Working on Multiple Record Forms

Multiple record forms are designed for adding and editing information that may have more than one record for the same case. For example, the mother may have had several previous pregnancies, or the patient may have several birth defect conditions. The operating procedure for a multiple record form contains three main steps: first, to find the associate single record; then, to find the multiple records; and finally, to add or edit the appropriate multiple record. The screen of multiple record forms are divided into two regions. The upper right region is used for the associate single record, and the lower left region is for multiple records. In the single record region, we have several fields as the identification of the case record. A set of navigation keys is located at the right side of the screen. They are used to search the single record. In the multiple record region, there is another set of navigation keys for those.

As we click the single record navigation keys, information in the multiple record area, if there is any, will also change. Clicking *Fix*, will fix the single record by disabling its navigation keys, and enable the *Add* key. If any multiple records for this single record already exist, the *Edit* and multiple record navigation keys will also be enabled. Instead of the *Locate* key, there is a *Bottom* key for multiple records, because for a specific case, the number of multiple records in a certain subject won't be too large, and there is no need to pop up a list. The *Bottom* key brings the first multiple record to the screen. Click *Add* or *Edit* will enable all data fields in the multiple record area, and at the same time disable the multiple record navigation keys. The *Save* key is enabled only when the obligatory fields are filled with data. After saving, the cursor goes back to the multiple record navigation key set. Click *Home*, will move the cursor to the single record area, stop adding or editing and disable fields in multiple record area, and enable the single record navigation keys.

For each individual multiple record, an *Item No* is given by the program as an unique field. *Delmark* is used in case you want to logically delete the multiple record. The default value is NO, meaning "Not deleted.". When working on multiple record forms, all fields in the single record area are always disabled. The following are special features of different multiple record forms.

P4. Other Hospital Admissions

Obligatory fields: hospital, abstracter, delete mark.

P5. Medical and Family History

When *Condition Code* is "01", for conditions of congenital anomalies, the birth defect codes have to be indicated before the *Save* is enabled. For the other cases, the cursor will go directly to *Delmark*.

Obligatory fields: family member code, condition code, delete mark.

P6. Previous Pregnancies

There is an area for total previous pregnancy information. It is a part of the single record. When these numbers are changed, you need to save the work by clicking the *Save* key at the right side of the screen. Because some times we only know the number of the previous pregnancies, but do not know detail situation of each pregnancy, we can enter only the total numbers of the previous pregnancies and enter the data in multiple record area as much as we know.

Obligatory fields: outcome, delete mark.

P7. Prenatal Diagnostic Procedures

When the *Outcome* of the diagnostic is '3' or '4', it means "birth defect, syndrome-suspected or diagnosed", the free text field *Result* should indicate which. This message will be used in the birth defect form.

Obligatory fields: procedure code, hospital, outcome, result, delete mark.

P8. Prenatal Medication

If beginning and ending dates of the medication are unknown, enter the trimester.

Obligatory fields: medication code, delete mark.

P9. Prenatal Complications

Class is used to divide complications into several groups. When precise dates of onset and resolved are unknown, enter the trimester.

Obligatory fields: complication class, complication code, delete mark.

P10. Postnatal Complications

Obligatory fields: complication code, delete mark.

P11. Physical Examinations

The free text specific result of the examination is needed for each individual multiple record as well as its coded outcome.

Obligatory fields: specialty code, hospital, outcome, result, delete mark.

P12. Postnatal Diagnostic Procedures

Procedures are classified into several groups. The *Site* is the place of the body where the procedure was performed. When the coded field *Outcome* is '3' or '4', it means "birth defect, syndrome-

suspected or diagnosed", and the free text field *Specific Result* should indicate which. This message will be used in the last form: the birth defect form.

Obligatory fields: procedure class, procedure code, hospital, outcome, result, delete mark.

P13. Birth Defect Section Form

Birth defect codes are classified into a three level group system. This design provides users three pop-up lists with less than 50 items in each list instead one list with nearly 1000 items. The indexes of *Prenatal DX*, *Postnatal DX* and Physical Exam are used to indicate those medical procedures resulting the finding of the birth defect.

Obligatory fields: birth defect code1, code2, code3, delete mark.

Chapter 6: Case Report Generating Form

Case record information reports can be obtained in the report generator form. All information is divided into 13 pages. There are four sets of function keys and data fields:

Case record data fields includes demographic, mother's and baby's basic information. They are used to confirm which case record is currently being worked on. So, all fields in this set are always disabled, and modifications on these fields are forbidden.

The *Record select button* keys are used to select the case record, of which you need the detailed information reports. There are six buttons in this set: *Top*, *Next*, *Prior*, *Bottom*, *Locate*, and *Fast Set*. Some thing new is the *Fast Set* button. When this button is clicked, the *Case ID* field is enabled allow you enter the case identification code. When the *Case ID* is set followed by [Enter], the record with this *Case ID* will be shown. If there is no record with this *Case ID*, the record at the top of the table will be brought to instead.

The *Report page select button* keys are designed to select the specific page you need to print out or browse. There is a field designed to indicate which report page is currently working on.

The *Report action button* keys are the most important part of this form. Functions of the six buttons in this set are:

Generate: to generate all report pages. If there is no records in some sections for the case, the small square field besides the corresponding page field will be empty. Otherwise, the square field will show "F". If we click a page button with a "F" besides it, we can obtain a report with information. If we click a page button with a empty square in front of it, we will obtain a empty report. When *Generate* is clicked, *Print All*, *Abort* and *Exit* are also enabled.

Abort: to stop the working on current case, and go to work on another case record. Enable all record navigation keys and disable page buttons and report action keys.

Preview: to browse the current report page, let you sure what you get.

Print: to send the report page to the printer connected to the computer.

Print All: to send all the 13 pages of the case report to the printer.

Exit: to exit the report generator form, and back to the main menu of the system.

Blank report papers are available before *Generate* is clicked.

Chapter 7: System Code Editing Forms

System Codes Table: Information about state, county, city, hospital, race, ethnicity, sex, birth defect type, etc., can be expressed by codes because for each piece of information the total possible data can be listed in a table with limited and definite items. Other kinds of information such as baby's name, birthday, address etc. are impossible to be replaced by any codes because the possible data for these kinds of information can not be listed in a limited table. System code tables are two dimensional tables with the codes and descriptions.

Single Level Code and Multiple Level Code: Some code tables have only one code and one description for each item, they are called single level codes. Some others may have two or more codes of deferent levels and one description for each item, they are called multiple level codes. The code of state is single level code, and code of county is two level code. For each county, state code, county code and county name are defined in the code table. A same county code can be used for different counties of different states. In some cases, when a single level code table holds too many items, it is a common strategy to define a multiple level code table to replace the large single code table.

System code editing forms are used to query, add, edit and delete information in the code tables. When work on these forms, two important rules should be kept in mind:

- *. Each record in the code table should be complete. No empty fields allowed. For example, the city code table is of three levels. Each city is defined with the state code, the county code, the city code and the city name. None of them can be omitted.

- *. Any change in the upper level code is subjected to that there no subsequent level code exists or they are changed at the same time. For example, if the code of a county is changed, the code of this county in the city code table should also be changed. When subsequent level code exists, the upper level code can not be deleted.

The above two principles have been taken into account in the system code editing form software.

1. Single Level Code Editing Form

There are four sets of keys and one edit area on the screen of the form.

At the left side of the screen there is a set of *Table Select Buttons*. It is the only initially enabled key set. Clicking a key in this set brings the table, with its name on the key, to the edit area. During any action process, clicking a table key other than the present one will automatically stop the work

on present table and go to the table currently chosen. Clicking button in this set will enable the *Record Navigation* key set.

At the bottom of the screen, there is a set of *Record Navigation* keys. They are used to select the item in the table you want to edit. Clicking *Top*, *Next*, *Prior*, or *Bottom* will bring the item at the corresponding position in the table to the edit area. Clicking *Locate* key will draw a pop-up list to the up-left corner with all items on it, generally in the alphabetic order. Clicking a key in this set will enable the action buttons of *Add*, *Edit*, and *Delete*.

At the right side there is a set of *Action* keys.

Add for adding a new item. Clicking *Add* will disable the *Record Navigation* key set and all action buttons except *Abort* and *Exit*, and clear the edit area for input new record.

Edit for editing the present item. Clicking *Edit* will disable the *Record Navigation* key set and all action buttons except *Delete*, *Abort* and *Exit*, and bring the cursor to the edit area for modifying of the present record.

Delete for deleting the present item in the edit area. A confirm action is needed for the realization of the *Delete* action. Clicking *Delete* will disable the *Record Navigation* key set and all action keys except *Cancel* and *Confirm*.

Save for save the present adding or editing. It is enabled only in the case of *Add* or *Edit* when both code and description is inputted correctly. Clicking *Save* will disable the *Record Navigation* key and all action buttons except *Add*, *Abort* and *Exit*.

Cancel and *Confirm* for recognizing of the *Delete* action. They are enabled only when the *Delete* is previously clicked. Clicking *Cancel* to cancel the *Delete* action. Clicking either of the two keys enable *Add*, *Edit*, *Delete*, *Abort* and *Exit*.

Search enables the *Record Navigation* key set and disables all the action keys exception the *Exit*. And then, brings the cursor to *Top*.

Exit clears the screen without saving of the present adding or editing and turns back to the main menu. This key is always enabled when the form is open.

Directly beneath the edit area, there is a set of *Font Setting* keys.

Capital turns all letters into capital font.

Small turns all letters into small font.

Proper turns the first letter of each word into capital font and the others into small font.

Sentence turns the first letter of the item description into capital font and all other letters into small font.

The function setting action is applied on all items in the table.

2. Multiple Level Code Editing Form

Codes for state, county and city are related to each other. For example, the codes for county have two parts, first part is used to define the state to which the county belong, and the second part is used to define the county. Then, the structure code table for counties should be as follows:

stateit	C2	state code
countymb	C3	county code
countynm	C30	county name

So, when we add or edit a code of county, we should first select the proper state. If we work on the city code, we have to define the state and county first. In this birth defect registry software system, we put relative multiple codes parameter in one form. All operation procedures are the same as the simple level code editing form, except the additional key for level selection.

APPENDIX E

Savannah River Region Health Information System

**Incidence of Selected Birth Defects in Three Regions:
Pee Dee, Tricounty, and Savannah River Region
South Carolina 1981-1988**

Technical Report

**SAVANNAH RIVER REGION
HEALTH INFORMATION SYSTEM**

**INCIDENCE OF SELECTED BIRTH
DEFECTS IN THREE REGIONS:**

Pee Dee, Tricounty, and Savannah River Region

**South Carolina
1981-1988**

**Technical Report
SRRHIS Series: 94:1**

INCIDENCE OF SELECTED BIRTH DEFECTS IN THREE REGIONS:

PEE DEE, TRICOUNTY, AND SAVANNAH RIVER REGION

1981-1988

The Savannah River Region Health Information System

**Medical University of South Carolina
Department of Biometry and Epidemiology
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I. Introduction

This technical report provides an overview of occurrence of selected birth defects in three regions in South Carolina (Savannah River, Pee Dee and Tri-County). Data are obtained from the public use birth certificate data files for the eight year period, 1981-1988. The birth defects evaluated in this report were chosen because they are relatively easily diagnosed at birth, and therefore, most likely to appear on the birth certificates.

The report attempts to address the concerns of the residents from the communities surrounding the Savannah River Site (SRS) about the effects of hazardous releases on their health, in particular, adverse birth outcomes. Therefore, the report contains data for the ten counties surrounding and down stream of SRS, which is referred to as the Savannah River Region. The data for the other two regions, Tri-County and Pee Dee, are compiled for the purpose of comparison with the Savannah River Region.

II. Background

In 1992, South Carolina ranked third highest among the states in infant mortality (12.3/1,000 live births). It ranked first in the proportion (9%) of live births with low birth weight (<2500 g). Congenital anomalies is the leading cause of infant mortality, and low birth weight is often observed in the newborns with birth defects.

A birth defect or a congenital malformation is a structural malformation present at birth. It may be the result of natural inheritance of a genetic component which causes the malformation,

or it may be due to teratogenic effects of an environmental element, such as infection, exposure to chemicals, drugs, or ionizing radiation.

Of considerable interest to the community surrounding the Savannah River Site is the potential teratogenic effect of radioactive materials released into the air and water. In an effort to address the concerns, the Savannah River Region Health Information System (SRRHIS) established an active surveillance system for birth defects in its catchment area, which includes ten South Carolina counties (Aiken, Allendale, Bamberg, Barnwell, Beaufort, Colleton, Edgefield, Hampton, Jasper, Orangeburg) along the Savannah River and within a 50 mile radius of the SRS. An active surveillance system for birth defects is based on an intensive case ascertainment and collection of case data from the primary sources, such as birthing hospitals. It requires the use of trained staff employed specifically for the purpose of visiting the hospitals and clinics to screen and ascertain cases from multiple sources, including medical records. In contrast, passive surveillance system relies on receiving limited reports from hospitals, physicians, and vital records offices. As such, a passive system provides information at a much reduced cost than an active system, and therefore, well-suited for exploratory research.

As a preliminary investigation into the occurrences of selected birth defects in South Carolina prior to the commencement of the active SRRHIS birth defects registry, data from the vital records were evaluated. This report summarizes the findings. The reader is cautioned that the major limitation of this report, namely lack of complete ascertainment due to limited resources, should be kept in mind when studying the figures in this report.

III. Data Source

The data for the report were obtained from the live births public use data file of the Office of Vital Records and Public Health Statistics, South Carolina Department of Health and Environmental Control. The period examined is restricted to the years 1981-1988 due to the limited availability of information from the public use data files.

The poor reliability of birth certificates as a source for enumerating birth defects is well-known [2]. The main reason for the shortcoming is the difficulty in ascertaining symptoms and characteristics of many birth defects at birth. Therefore, upon consultation with Dr. G. Shashidhar Pai, Associate Professor and Director of Genetics at the Medical University of South Carolina, the following 14 birth defects, which are easily identified by sight at birth, were selected for tabulation:

<u>Birth Defect</u>	<u>ICD-9 Code</u>
Anencephalus	740
Spina Bifida	741.0, 741.9
Encephalocele	742
Cleft Palate	749
Cleft Lip	749.1
Cleft Palate with Cleft Lip	749.2
Rectal or Intestinal Atresia	751.2
Hypospadias or Epispadias	752.6
Bladder Exstrophy	753.5
Clubfoot (congenital)	754.7
Reduction Deficiency-Upper	755.2
Reduction Deficiency-Lower	755.3
Gastroschisis or Omphalocele	756.7
Down's Syndrome	758

The description of each of these 14 defects are provided in the Appendix.

The data files for each year examined contain a variable, CONGENIT, which is entered as an International Classification of Diseases, Ninth Revision (ICD-9), code for the major birth defect observed. If the variable CONGENIT was blank, then no birth defect was assumed.

The counties included in the three regions for this report are as follows:

	<u>Savannah River Region</u>	<u>Pee Dee Region</u>	<u>Tricounty Region</u>
	Aiken	Chesterfield	Berkeley
	Allendale	Darlington	Charleston
	Barnwell	Dillon	Dorchester
	Bamberg	Florence	
	Beaufort	Horry	
	Colleton	Marion	
	Edgefield	Marlboro	
	Hampton	Williamsburg	
	Jasper		
	Orangeburg		
Total # of Live Births: (1981-1988)	55,947	59,547	71,321

IV. Data Summary

Tables 1-4 provide the baseline incidence counts for each year during the 1981-1988 period, the total frequencies, and incidence rates (cases per 10,000 live births) for the eight-year period for all three regions combined, the Savannah River region, the Pee Dee region, and the Tricounty region, respectively. Figures 1-14 present the eight-year trend of the incidence rates for each of the 14 selected birth defects.

Statistical significance of any differences in the eight-year incidence rates among the three regions was determined using the chi square test [3]. The null hypothesis, that no differences

exist in the rates among the three regions, is rejected at an α -level of 0.05 for all of the selected birth defects except Lower Reduction Deformity. The Savannah River Region's incidence rate for Lower Reduction Deformity is significantly higher than that in the Pee Dee region ($p < 0.025$) and in the Tricounty region ($p < 0.025$). No significant difference exists between the Pee Dee region and the Tricounty region.

V. Results of Other Surveillance Systems

Incidence rates from two surveillance systems, the North Carolina Birth Defects Registry (NCBDR) and the Metropolitan Atlanta Congenital Defects Program (MACDP), are presented for comparison. The NCBDR is a passive surveillance system which uses up to four supplementary sources to ensure accurate recording of birth defect occurrences. In addition to the birth certificate data, information from Medicaid, Children's Special Health Services (CSHS) data, newborn hospital discharge files, and infant death records are all incorporated to achieve better ascertainment [4].

The MACDP conducts active surveillance of five counties encompassing and surrounding Atlanta. Besides vital records data, this system uses maternal and infant medical records found in birth hospitals, pediatric referral hospitals, cytogenetic laboratories, and specialty clinics to produce near complete ascertainment [1].

The following table from the NCBDR highlights the limitation of our report in that use of a single source results in underestimation of incidence of birth defects.

Numbers and Percentages of Congenital Anomalies by Source of Data
North Carolina, 1984-1986*

SOURCE OF DATA	NUMBER OF RECORDS	PERCENT OF ALL BIRTHS
Birth Certificate	2,087	0.8
Newborn Medicaid Claim	882	0.3
Infant Death Record	743	0.3
Newborn Hospital Discharge Record	8,530	3.2
CSHS Record	2,784	1.0
All Sources Combined	12,581	4.7

*Reproduced from "North Carolina Surveillance Of Birth Defects" by Lee A. Sullivan. Table 2. [4]

Additionally, the following table presents the incidence rates (cases per 10,000 live births) from the three surveillance systems (SRRHIS, NCBDR, MACDP), for the selected birth defects. The NCBDR reports incidence rates from birth certificate data only and for registry data from 1984-1986. The MACDP reports incidence rates from 1981-1988. Careful attention to results presented is needed because of variations in definition of a birth defect among the different surveillance systems. Thus, ICD-9 codes, when available, are presented along with data from each system.

Incidence Rates per 10,000 Live Births for Selected Birth Defects For SRRHIS¹, NCBDR², and MACDP³

Condition	SRRHIS 1981-1988		NCBDR 1984-1988			MACDP 1981-1988	
	ICD-9	Rate	ICD-9	Birth Certificate Rate	Registry Rate	ICD-9	Rate
Anencephalus	740.0	0.89	740	1.09	1.66	740.00-740.08	3.2
Spina Bifida	741.0-9	2.14	741	3.82	5.87	741.00-741.99 / 741.90-741.98	6.1
Other Anomalies of Nervous System	-	-	742	4.14	13.78	-	-
Encephalocele	742.0	0.36	742.0	-	1.51	742.00-742.09	2.1
Cleft Palate and Lip	749.0	1.25	749	8.70	13.44	-	-
Cleft Palate without Cleft Lip	749.1	1.79	749.00-749.04	-	5.23	749.00-749.09	4.6
Cleft Lip with & without Cleft Palate	749.2	1.79	749.1-749.2	-	8.85	749.10-749.19 / 749.20-749.29	9.8
Other Digestive System	-	-	751	2.67	10.43	-	-
Rectal and Intestinal Atresia	751.2	1.07	751.2	-	2.90	751.20-751.24	3.7
Genital Organ Anomalies	-	-	752	7.98	60.35	-	-
Hypospadias or Epispadias	752.6	5.72	-	-	-	752.60-752.627	30.5
Urinary System Anomalies	-	-	753	2.00	9.53	-	-
Bladder Exstrophy	753.5	0	753.5	-	0.41*	753.5	0.2
Musculoskeletal Deformities	-	-	754	6.81	101.28	-	-
Clubfoot	754.7	3.75	754.5, 51, 59, 6, 79	-	41.9	754.7	23.3
Other Limb Anomalies	-	-	755	20.29	94.16	-	-
Reduction Deformity Upper Limbs	755.2	1.07	755.2-755.28	-	1.02	755.20-755.29	3.7
Reduction Deformity Lower Limbs	755.3	1.07	755.3-755.38	-	0.60*	755.30-755.39	1.5
Other Musculoskeletal	-	-	756	3.28	20.71	-	-
Gastroschisis or Omphalocele	756.7	0.71	-	-	-	756.7-756.71	5.0
Chromosomal Anomalies	-	-	758	4.07	11.60	-	-
Down's Syndrome	758.0	2.32	758.0	-	7.08	758.00-758.09	10.0

Table reproduced from [4], [5], [7], and [8]

*Rate based on fewer than 20 events in the numerator may indicate serious random error and should be used very cautiously in making comparisons or assessing trends.[4]

- Data unavailable

¹SRRHIS: Savannah River Region Health Information System

²NCBDR: North Carolina Birth Defects Registry

³MACDP: Metropolitan Atlanta Congenital Defects Program

VI. Conclusion

This technical report provides a compilation of the birth certificate data for the 14 birth defects including incidence rates and graphical presentations. The preliminary report is the first step in surveillance of birth defects in South Carolina. It tracks birth defects, analyzes geographical differences in rates, and assists researchers in their endeavors to increase our knowledge of the associations between birth defects and genetic and/or environmental factors.

VII. Tables

The following four tables list the 14 selected birth defects and corresponding ICD-9 code. Each table presents the baseline incidence counts for each year, total frequencies and incidence rates (cases per 10,000 live births) for each of the birth defects for the entire period, and total number of live births for the period 1981-1988. TABLE 1 combines the data for the Savannah River, Pee Dee, and Tricounty regions. TABLE 2-4 present the frequencies and rates for each of the regions separately. Incidence rates are computed by dividing the number of cases by the total number of live births during the observed time period.

TABLE 1. Incidence Frequencies and Rates per 10,000 Live Births
Savannah River, Pee Dee, and Tricounty Regions

BIRTH DEFECT	ICD-9	1981	1982	1983	1984	1985	1986	1987	1988	1981-1988	Rates
Anencephalus	740.0	0	6	1	3	1	2	5	1	19	1.02
Spina Bifida	741.0,9	6	3	4	6	5	6	7	6	43	2.30
Encephalocele	742.0	1	3	2	1	0	0	0	0	7	0.37
Cleft Palate	749.0	3	8	3	3	6	5	0	7	35	1.87
Cleft Lip	749.1	6	1	1	5	3	2	2	6	26	1.39
Cleft Palate w/ Lip	749.2	3	8	10	4	1	7	5	3	41	2.19
Rectal/Intestinal Atresia	751.2	2	3	5	1	1	3	1	0	16	0.86
Hypospadias/Epispadias	752.6	15	12	15	20	9	10	6	13	100	5.35
Bladder Exstrophy	753.5	0	0	0	0	0	0	0	1	1	0.05
Clubfoot (congenital)	754.7	14	4	17	4	10	5	9	6	69	3.69
Reduction Deficiency-Upper	755.2	3	2	4	2	2	3	2	1	19	1.02
Reduction Deficiency-Lower	755.3	2	1	0	0	0	2	2	1	8	0.43
Gastroschisis/Omphalocele	756.7	4	2	3	3	7	0	2	2	23	1.23
Down's Syndrome	758.0	6	6	13	2	8	3	3	2	43	2.30
TOTAL		65	59	78	54	53	48	44	49	450	24.09
TOTAL NUMBER OF LIVE BIRTHS		23,055	23,059	22,963	22,810	23,525	23,417	23,589	24,393	186,811	

TABLE 2. Incidence Frequencies and Rates per 10,000 Live Births
Savannah River Region

BIRTH DEFECT	ICD-9	1981	1982	1983	1984	1985	1986	1987	1988	1981-1988	Rates
Anencephalus	740.0	0	1	0	1	0	0	2	1	5	0.89
Spina Bifida	741.0, 9	1	1	2	1	3	2	1	1	12	2.14
Encephalocele	742.0	1	1	0	0	0	0	0	0	2	0.36
Cleft Palate	749.0	1	2	1	0	2	1	0	0	7	1.25
Cleft Lip	749.1	1	0	0	2	1	0	1	5	10	1.79
Cleft Palate w/ Lip	749.2	1	1	3	0	1	1	1	2	10	1.79
Rectal/Intestinal Atresia	751.2	0	2	2	1	0	1	0	0	6	1.07
Hypospadias/Epispadias	752.6	4	3	8	8	2	2	1	4	32	5.72
Bladder Exstrophy	753.5	0	0	0	0	0	0	0	0	0	0.00
Clubfoot (congenital)	754.7	7	1	3	2	1	1	3	3	21	3.75
Reduction Deficiency-Upper	755.2	2	1	2	1	0	0	0	0	6	1.07
Reduction Deficiency-Lower	755.3	2	0	0	0	0	2	1	1	6	1.07
Gastroschisis/Omphalocele	756.7	0	1	1	0	1	0	0	1	4	0.71
Down's Syndrome	758.0	1	1	7	0	3	1	0	0	13	2.32
TOTAL		21	15	29	16	14	11	10	18	134	23.95
TOTAL NUMBER OF LIVE BIRTHS		7,199	6,967	6,888	6,655	6,941	6,917	7,039	7,341	55,947	

TABLE 3. Incidence Frequencies and Rates per 10,000 Live Births
Pee Dee Region

BIRTH DEFECT	ICD-9	1981	1982	1983	1984	1985	1986	1987	1988		1981-1988	Rates
Anencephalus	740.0	0	2	1	2	0	0	2	0		7	1.18
Spina Bifida	741.0..9	2	1	1	4	0	2	3	4		17	2.86
Encephalocele	742.0	0	0	1	1	0	0	0	0		2	0.34
Cleft Palate	749.0	1	2	1	1	2	2	0	4		13	2.18
Cleft Lip	749.1	0	0	1	0	1	2	0	1		5	0.84
Cleft Palate w/ Lip	749.2	1	3	3	1	0	3	2	1		14	2.35
Rectal/Intestinal Atresia	751.2	2	0	1	0	0	2	0	0		5	0.84
Hypospadias/Epispadias	752.6	5	2	1	4	3	4	3	2		24	4.03
Bladder Exstrophy	753.5	0	0	0	0	0	0	0	1		1	0.17
Clubfoot (congenital)	754.7	5	1	5	0	5	3	6	3		28	4.70
Reduction Deficiency-Upper	755.2	0	0	1	1	1	2	0	1		6	1.01
Reduction Deficiency-Lower	755.3	0	1	0	0	0	0	0	0		1	0.17
Gastroschisis/Omphalocele	756.7	4	1	1	1	3	0	1	1		12	2.02
Down's Syndrome	758.0	4	4	1	0	2	0	1	1		13	2.18
TOTAL		24	17	18	15	17	20	18	19		148	24.86
TOTAL NUMBER OF LIVE BIRTHS		7,653	7,602	7,218	7,266	7,437	7,484	7,361	7,522		59,543	

TABLE 4. Incidence Frequencies and Rates per 10,000 Live Births
Tricounty Region

BIRTH DEFECT	ICD-9	1981	1982	1983	1984	1985	1986	1987	1988		1981-1988	Rates
Anencephalus	740.0	0	3	0	0	1	2	1	0		7	0.98
Spina Bifida	741.0,9	3	1	1	1	2	2	3	1		14	1.96
Encephalocele	742.0	0	2	1	0	0	0	0	0		3	0.42
Cleft Palate	749.0	1	4	1	2	2	2	0	3		15	2.10
Cleft Lip	749.1	5	1	0	3	1	0	1	0		11	1.54
Cleft Palate w/ Lip	749.2	1	4	4	3	0	3	2	0		17	2.38
Rectal/Intestinal Atresia	751.2	0	1	2	0	1	0	1	0		5	0.70
Hypospadias/Epispadias	752.6	6	7	6	6	4	4	2	7		44	6.17
Bladder Exstrophy	753.5	0	0	0	0	0	0	0	0		0	0.00
Clubfoot (congenital)	754.7	2	2	9	2	4	1	0	0		20	2.80
Reduction Deficiency-Upper	755.2	1	1	1	0	1	1	2	0		7	0.98
Reduction Deficiency-Lower	755.3	0	0	0	0	0	0	1	0		1	0.14
Gastroschisis/Omphalocele	756.7	0	0	1	2	3	0	1	0		7	0.98
Down's Syndrome	758.0	1	1	5	2	3	2	2	1		17	2.38
TOTAL		20	27	31	23	22	17	16	12		168	23.56
TOTAL NUMBER OF LIVE BIRTHS		8,203	8,490	8,857	8,889	9,147	9,016	9,189	9,530		71,321	

VIII. Graphs

The following graphs are presented to show trends in birth defects during the time period, 1981-1988. For each year, the incidence rate (cases per 10,000 live births) for each of the three regions is plotted. The first 14 graphs show the trend of the incidence rates for each of the selected birth defects over the specified time period. The last graph shows the trend of the incidence rates for all of the selected birth defects combined for each of the three regions during the time period, 1981-1988.

GRAPH 1. Anencephalus

GRAPH 2. Spina Bifida

GRAPH 3. Encephalocele

GRAPH 4. Cleft Palate

GRAPH 5. Cleft Lip

GRAPH 6. Cleft Palate w/ Lip

GRAPH 7. Rectal/Intestinal Atresia

GRAPH 8. Hypospadias/Epispadias

GRAPH 9. Bladder Exstrophy

GRAPH 10. Clubfoot

GRAPH 11. Reduction Deficiency-Upper

■ Savannah River Region
◆ Pee Dee Region
▲ Tricounty Region

GRAPH 12. Reduction Deficiency-Lower

GRAPH 13. Gastroschisis/Omphalocele

GRAPH 14. Down's Syndrome

GRAPH 15. All 14 Birth Defects Combined

IX. Appendix

This appendix contains the definitions for the fourteen birth defects addressed in this technical report [10].

Anencephalus - absence or deficiency of a major portion of the cranial vault at birth.

Spina Bifida - a visible sac or epithelial defect over the spine, caudal to the level of the lesion which the nerve tissue can be seen, and associated with neurologic deficit.

Encephalocele - a mass in the midline of the parietal or occipital skull, that is usually skin covered; possibly containing major amounts of brain.

Cleft Palate - a partial or complete closure of the oral cavity and, in some cases, the nasopharynx is associated with different degrees of a cleft palate.

Cleft Lip - incomplete or complete clefts of the upper lip, which may be unilateral or bilateral and may extend posteriorly to include the maxillary alveolar process and hard and soft palates; the ala of the nose may be deficient on the cleft side.

Rectal Atresia - the presence of a lower intestinal obstruction.

Intestinal Atresia - the presence of an upper intestinal obstruction of the stomach, duodenum, and proximal jejunum.

Hypospadias - the presence of a urethral meatus at a location other than the tip of the glans penis in an otherwise normal male; foreskin is deficient on the ventral aspect of the penis.

Epispadias - the presence of an urethral meatus at a dorsal location proximal to the tip of the phallus.

Bladder Exstrophy - urinary tract is open anteriorly from the urethral meatus to the umbilicus; wide separation of the pubic symphysis and the rectus muscles is invariably present.

Clubfoot (congenital) - a collection of a variety of abnormalities which includes the following: forefoot is adducted and often supinated while the heel and ankle remain in normal position, dorsiflexed and everted foot, or forefoot adduction and supination, heel varus, and ankle equinus in which muscles of the posterior and medial aspects of the leg are relatively shortened, and the fibrous capsules of affected joints are often thickened in their lateral aspects.

Reduction Deficiency (Upper) - multiple, extensive, and variable reduction deformities of the upper limbs.

Reduction Deficiency (Lower) - multiple, extensive, and variable reduction deformities of the lower limbs.

Gastroschisis - a small abdominal wall defect in which the thickened small intestines are herniated without remnant of a covering sac.

Omphalocele - the occurrence of intra-abdominal viscera herniated into the amniotic sac surrounding the umbilical cord.

Down's Syndrome - the presence of an additional chromosome number 21 resulting from non-disjunction during meiosis in one of the parents, which correlates with advanced maternal age; characterized by moderate to severe mental deficiency, slanting eyes, broad short skull, and broad hands with short fingers.

X. References

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