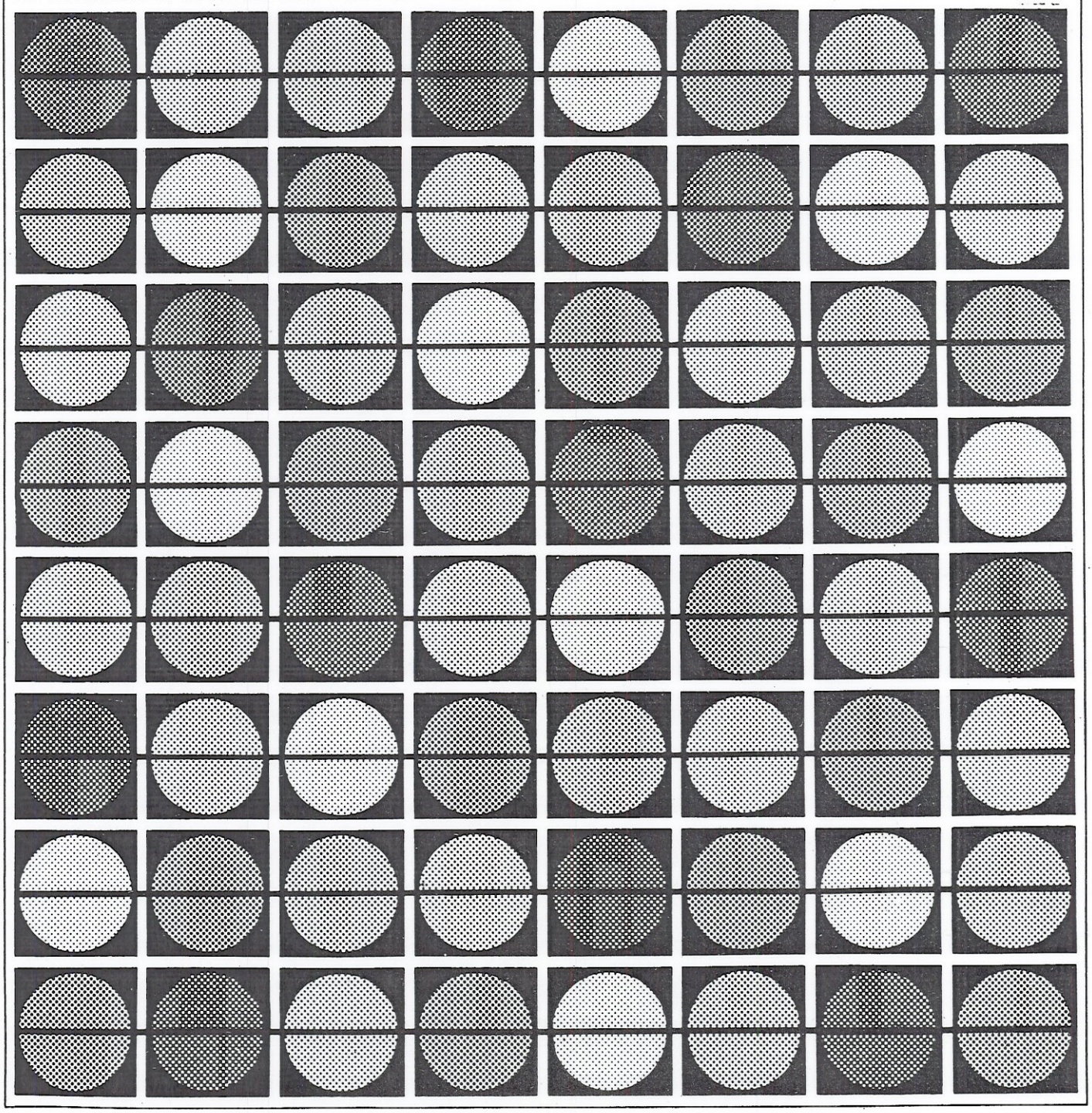
Instruction Manual Part 2d

Vital Statistics
NCHS Procedures for Mortality
Medical Data System File Preparation
and Maintenance

Effective 1985

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES • Public Health Service • Centers for Disease Control • National Center for Health Statistics



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This instruction manual was prepared by the Division of Vital Statistics in collaboration with the Division of Data Processing. Questions regarding this manual and related processing problems should be directed to the Technical Services Branch, Division of Vital Statistics, National Center for Health Statistics, P.O. Box 12214, Research Triangle Park, North Carolina 27709. Questions concerning interpretation of ICD and Mortality data analysis should be referred to Mortality Statistics Branch, Division of Vital Statistics, National Center for Health Statistics, Center Building, Prince George Center, 3700 East-West Highway, Hyattsville, Maryland 20782.

This edition updates documentation of file preparation and maintenance procedures to reflect changes made during the processing of the 1980-84 mortality data files. Major changes since the 1979 edition of this manual include elimination of the 10 percent underlying cause of death quality control sample, reduction of the size of multiple cause of death Vital Statistics Cooperative Program and non-Vital Statistics Cooperative Program quality control samples, refinement of the algorithm for detecting coding errors, redesign of the multiple cause of death training and qualification program, and streamlining of quality control processing procedures.

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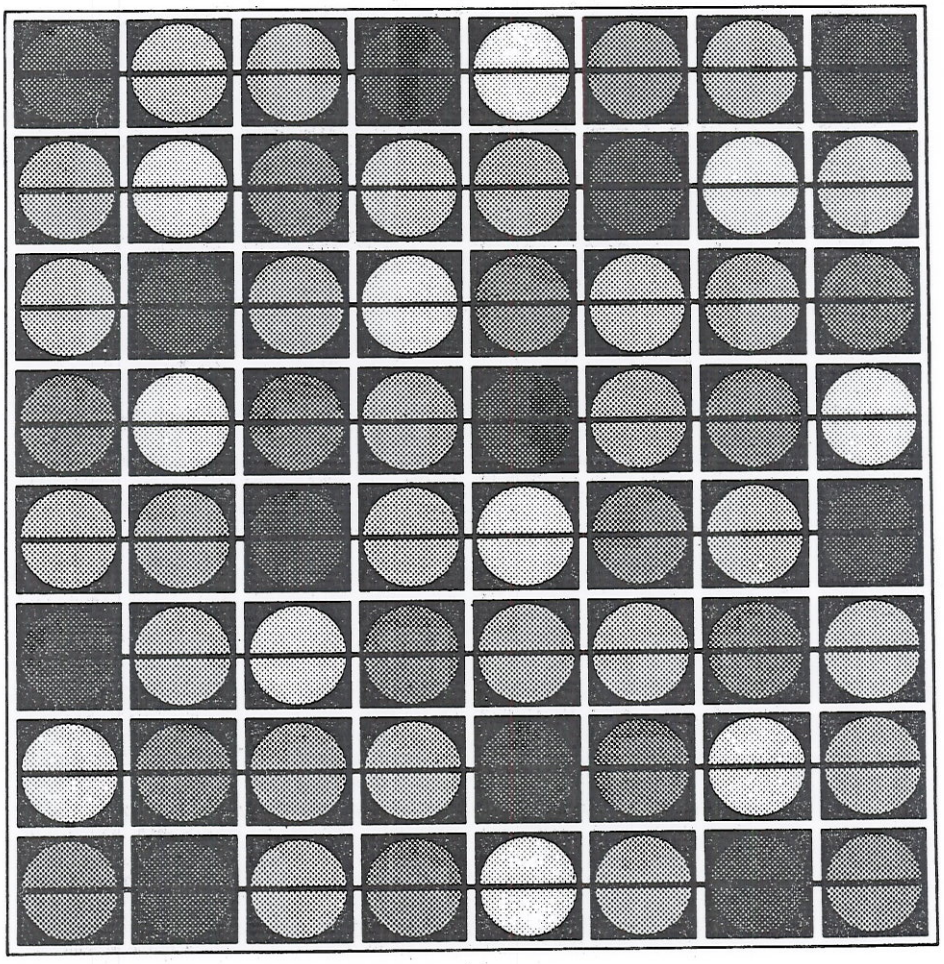

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Center for Health Statistics

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CONTENTS

NCHS PROCEDURES FOR MORTALITY MEDICAL

DATA SYSTEM FILE PREPARATION AND MAINTENANCE

Effective 1985

SECTION I - INTRODUCTION

Mortality medical data are processed by four basic types of programs in sequential order: QUALITY, ACME, TRANSAX, and EDIT. QUALITY checks the accuracy of the multiple cause codes initially coded by a nosologist (see Part 2b of the Vital Statistics Instruction Manual Series for coding instructions). ACME[1] edits the multiple cause codes and assigns the underlying cause of death applying a predefined algorithm to the multiple cause codes based on traditional ICD[2] rules for manual selection of the underlying cause of death (see Part 2a of the Vital Statistics Instruction Manual Series). TRANSAX[1] translates the multiple cause data from an entity axis of classification to a record (person) axis of classification. EDIT[3] represents a series of programs that check for missing records, edit for rare multiple and rare underlying causes, perform age/cause and sex/cause conditional and absolute compatibility checks, and validate code assignments. Each phase, except TRANSAX, rejects records not meeting certain predefined criteria. The rejected records are manually corrected and then updated prior to processing the work unit in a subsequent phase. This provides for a complete, updated file to be entered into each program phase.

This manual contains instructions for input preparation and maintenance of the various medical data files required to support the systems programs. This includes initial input to the system, reconciliation of reject messages, and rekeying of rejected records at each stage of processing.

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1 For more detailed information on ACME and TRANSAX, see "A National Multiple Cause of Death Data System" by Chamblee and Evans published in the proceedings of the Third Annual Symposium on Computer Applications in Medical Care, October 14-17, 1979, Washington, D.C.

2 International Classification of Diseases, Volumes 1 and 2.

3 For more detailed information on edits applied to mortality data, see Parts 2a, 2b, 4, and especially 11 of the Vital Statistics Instruction Manual Series.

Instructions for entry and updating of demographic data from the death certificate are contained in Part 4 of the Vital Statistics Instruction Manual Series. The National Center for Health Statistics (NCHS) processes the demographic and medical data from a death certificate in two separate tracks creating a demographic data record and a medical data record for each certificate. The demographic record is first entered and established as a master record against which a corresponding medical record is paired and the combination record is then edited for inconsistencies. This manual covers data entry steps relative to independent medical record processing and to merged record processing but not to the independent demographic processing. The flow chart in Appendix 1 describes the data flow and segregation of activities.

This manual provides processing instructions which are, for the most part, carried out internal to NCHS for death certificates received on microfilm from 33 registration areas[1]. However, all medical data entry and some reject reconciliation steps are handled at the State level by 21 registration areas which supply data through a State/NCHS shared data system called the Vital Statistics Cooperative Program (VSCP). In these States, the initial coding and reconciliation of ACME rejects is handled by the State office. And, in most of these 21 States, the ACME and TRANSAX software is installed in the State office to permit processing of the data through these phases prior to transmittal of a data file to NCHS. In a few States, all computer processing takes place at NCHS with the State supplying the input data. In both situations, after NCHS receives the data from the States, it is evaluated against quality control specifications and processed through subsequent edits either of which may indicate the need for corrective action by the State office. The flow chart in Appendix 1 illustrates the VSCP and non-VSCP components of the program.

SECTION II - MEDICAL DATA RECORD INPUT

For the purpose of computer processing, medical data record input to the system must be in character representation and subscribe to the format given in Appendix 2. The record length must be 120 bytes with the last 18 bytes containing blanks or user defined data which ACME ignores. Position 102 is reserved for system use in flagging records for manual review and must be left blank.

Data entry can take any form (optical character recognition, key disk, key tape, card punch, etc.) and use any reasonable format so long as the final product serving as input to ACME meets the above specifications. Table 1 provides specifications for coding each data field in the input record. The "Key-to-Disk Input" and "Interactive Edit" columns are unique to the NCHS key-to-disk mode of data entry. The remaining instructions are not geared to a specific equipment application and represent basic requirements for ACME input. In cases where coding is carried out on transcription sheets prior to key entry, Appendix 3 is illustrative of the transcription sheet to be used.

[1] Registration areas in this manual refer to the 50 States, District of Columbia, New York City, Virgin Islands, and Puerto Rico. For convenience, the term "States" is used synonymous with registration areas.

TABLE 1
KEY-TO-DISK INPUT INSTRUCTIONS

Item	Key to Disk Input: Program Level	Key to Disk Input: Data Position	Code Structure	Coding Specifications	Interactive Edit	Tape Output Position (Input to ACME)
Data Year	2	1	5	Data year being processed.	Format generated.	1
Place of Injury	3	90	blank, 0-9	Refer to page 138 of Part 2b and ICD-9, Volume 1, page 569.	Valid code check.	2
Shipment Number	2	2-3	01-15	Refer to Batch Control Record. Care should be taken to assure the correct shipment number is entered and not the lot number.	Valid code check.	3-4
State File Number	3	1-6	000001-999999	Number located in upper right hand corner of certificate (except for California) is entered. See special instructions in text for this item.	Valid code check. This file number = 1 + preceding file number (allow override).	5-10
State Code	2	4-5	01-51	Refer to list of geographic codes in Special List B, Part 2b.	Valid code check.	11-12
Component of Reporting Area	2	6	New York City Bronx Borough...1 Brooklyn Borough...2 Manhattan Borough...3 Queens Borough...4 Staten Isl. Borough...5	Entered from Batch Control Record.	Valid code check. Should be 0 if data positions 4-5 is not equal to 14 or 33.	13

TABLE 1-Continued

Item	Key to Disk Input: Program Level	Key to Disk Input: Data Position	Code Structure	Coding Specifications	Interactive Edit	Tape Output Position (Input to ACME)
Component of Reporting Area-Con.			Chicago.....6 All other reporting areas.....0			
Batch Number	2	7-9	001-999	Entered from Batch Control Record.	Valid code check.	14-16
Coder Status	2	10	1..Production Coder 2..Coder-Verifier 3..Coder-Verifier	Entered from Batch Control Record.	Valid code check.	17
Manually Assigned Underlying Cause of Death	3	86-89	bbbb..Not coded. 000b-9999 if coded. (Refer to Part 11 instruction manual.)	Refer to Part 2a. If a three-digit code, the last digit is spaced.	Valid code range check.	18-21
Intentional Reject Code	3	91	b..Not rejected 1-5..Inconsistent duration 9..More than four "due to's"	Refer to pages 61 and 62 of Part 2b.	Valid code check.	22
Conditions	3	7-85	Refer to Part 11 manual.	For coding of individual conditions, refer to Part 2b. For placement and sequencing instructions, special instructions in text apply to this item.	Field can contain only 0-9, , *, (,), and & on a position-by-position basis.	23-101
Blank	-	-				102-120

A. State File Number

Occasionally, the coder encounters certificates with duplicate numbers or certificates which have not been numbered. The following numbering procedures are prescribed for such certificates:

1. Duplicate State File Numbers - For duplicate State file numbers assigned to different events, the State file number is coded and entered as it appears for the first certificate; 99 is entered for the first two digits of the State file number of the second duplicate number certificate; 98 for the third such number, 97 for the fourth, 96 for the fifth, 95 for the sixth, 94 for the seventh, 93 for the eighth, 92 for the ninth, 91 for the tenth, 90 for the eleventh, 89 for the twelfth, etc., for all subsequent certificates having duplicate State file numbers.

Example	Enter as State File Number
002277 (first certificate)	002277
002277 (second certificate, first duplicate)	992277
002277 (third certificate, second duplicate)	982277

2. Unnumbered Records - Each unnumbered certificate is assigned the same State file number as that of the preceding certificate except 99 is substituted as the first two digits of the State file number. The first two digits of the State file number are altered in descending order 98, 97, 96, etc., for all subsequent unnumbered certificates.

Example	Enter as State File Number
002796 (first certificate)	002796
unnumbered (second certificate, first unnumbered)	992796
unnumbered (third certificate, second unnumbered)	982796

B. Multiple Cause Codes

Multiple cause codes are entered in free format fashion with special symbols denoting placement and sequence. Instructions are as follows:

1. Symbols unique to ACME input data are:

Symbol	Function	Example
/	Denotes line entry in Part I of certificate (up to 5 lines allowed in Part I for processing purposes).	Part I. a) 410 b) 4409 c) 4140 Part II. 4292
*	Denotes entry(s) in Part II of certificate.	410/4409/4140*4292

Symbol	Function	Example
&	Identifies the following: a. The most specific E code causing injuries or poisoning, b. The underlying condition that necesitated the medical or surgical care when there was a complication or adverse effect of the medical or surgical care, c. The adverse effect or complication of medical or surgical care when clasifiable to Chapters I-XVI and the underlying condition that necessitated the medical or surgical care is not stated or implied, d. A misadventure occurring during medical or surgical care when classifiable to Chapters I-XVI, whether or not the underlying condition that necessitated the medical or surgical care is reported, and e. Certain localized effects of poisonous substances (E860-E869) or aspiration (E911-E912) when classifiable to Chapters I-XVI.	&8789 &462
(	Denotes the first digit, "8," of the 800 series for the Nature of Injury category[1] since the same span of code numbers is used for both nature of injury and external cause categories in ICD-9.	800 = (00
)	Denotes the first digit, "9," of the 900 series for the Nature of Injury category[1] since the same span of code numbers is used for both nature of injury and external cause categories in ICD-9.	901 =)01

[1] Codes in Chapter XVII, Injury and Poisoning, International Classification of Diseases, Ninth Revision.

2. In using the / (slash) to denote lines of Part I and the * (asterisk) to denote Part II (referred to as line 6), the following rules are observed:

   a. The symbol is placed prior to the codes assigned on each line.

      Exception: for line a, the slash must not be used.

   b. If no codes appear on a line, the line symbol is omitted.

      Exception: (1) When codes appear on lower line(s) of Part I but not on upper line(s), the slash must be used to denote empty lines above the first used line (excluding line a), and (2) when codes appear on upper line(s) and lower line(s) of Part I but not on intervening lines, slashes must be used to denote empty intervening lines.

3. When the parenthesis is used as the first digit of Nature of Injury codes, a space must not be left between the parenthesis and remaining numerals of the code, e.g., (03.

4. A space must not be left between an "&" and the code to which it relates, e.g., &887.

5. When a code is contiguous to a / or *, a space is not left between the code and the symbol, e.g.,.2019/500*2029.

6. ICD-9 Volumes 1 and 2 provide a decimal point between the third and fourth digits of four digit categories. However, this decimal point is not entered when coding.

7. Excess (more than eight codes) or repetitive codes on a given line are deleted acording to page 6 of Part 2b of the Vital Statistics Instruction Manual Series.

C. Illustration

The data record appears in a format illustrated by the following:

Item:	Data Year	Place of Injury	Shipment Number	State File Number	State	Component of Reporting Area
Position:	(1)	(2)	(3-4)	(5-10)	(11-12)	(13)
Examples:	5		02	000001	01	0
	5		02	000002	01	0
	5	9	02	000003	01	0
	5		02	000004	01	0

Item:	BATCH	Coder Status	Manually Assigned Underlying Cause of Death	Intentional Reject
Position:	(14-16)	(17)	(18-21)	(22)
Examples:	001	1	4320	1
	001	2	2019	
	001	3	220	9
	001	1	0020	

Item:	Multiple Cause Codes	Blanks
Position:	(23-101)	(102-120)
Examples:	4320/2109	
	4320///2019*8010	
	220/4300/4019 3109 2019/2019/500*2029 (03*&887	
	//0020 2773*887	

etc.

SECTION III - QUALITY CONTROL OVER MEDICAL CODING - NON-VSCP DATA

Control of the quality of multiple cause coding assures quality underlying cause codes as well as multiple cause of death codes since the underlying cause is derived automatically from the multiple cause codes via the ACME computer system. For this reason, the quality control procedures are directed toward multiple cause coding. Prior to coding data for use by NCHS, coders must satisfactorily complete a course in multiple cause classification. The course includes a requirement that they code enough hypothetical and actual records to thoroughly demonstrate their comprehension of all of the coding rules. Once initially qualified in this manner, coders are monitored by the quality control procedure described in the following paragraphs.

Multiple Cause Quality Control Procedures

Each batch of work which is coded by a "qualified coder" is verified on a 1 percent sample basis using a technique called two-way independent verification.

The procedure is carried out by having one coder (called the production coder or coder 1) code all certificates in each batch of work of approximately 2,500-3,000 certificates. A second coder (coder 2) independently codes an identical 1 percent sample of the batch. The resultant pair of code assignments for each sample record is then compared by computer. Certificates where coders 1 and 2 disagreed on one or more code assignments must be independently coded by a third coder after which errors are charged by computer. In charging errors, the 3 sets of codes for the sample certificates coded by all three coders are compared by computer on a record-by-record, line-by-line, code-by-code basis to charge code error based on the majority opinion as correct for each positional location (e.g., first code for line 2 of Part I of the medical certification). Detailed specifications are given in the following paragraphs.

1. Work Assignment - Work batches are assigned for production coding on a coder available basis within the framework of unit priorities. However, only verifiers are eligible for sample coding (coders 2 and 3). For each batch, the production assignment is done prior to the sample assignment. The work assignment record is completed by each coder as indicated.

2. Sample Digit - For purposes of coder 2, each batch is assigned sample digits (00-99) from a random number table. In sample coding, only those certificates which have a State file number ending in the sample digits are verified. In general, assuming no missing or duplicate State file numbers, every one-hundredth certificate is coded by coder 2. The sample digit is assigned only after the production coding is complete.

3. The Preferred Set - For certificates coded by all three coders, the computer software generates a hypothetical record which represents the

majority or preferred opinion of the three coders coding each sample certificate. Errors are then charged to each coder by comparing his/her set of codes against the preferred set of codes. The preferred set is created through a process which compares each code assigned by a coder in a given positional location (e.g., the second code on line 3) with the code(s) assigned by the other two coders in the corresponding line and positional location and places the preferred (majority) code in that positional location in the preferred set. Codes are entered in free format fashion and one coder may assign fewer codes than others. In such situations, for purposes of creating the preferred set, each coder's set of codes on a line is supplemented with null codes to equal the maximum number of codes assigned by the three coders.

Where two null codes are compared with a real code, the preferred set is empty in that location. In situations where all coders disagree on the code assignment in a given location, a dummy code, XXXX, is placed in the preferred set.

4. Charging Errors - To charge errors, the software examines the preferred code for each location (line, location on line) in comparison to each coder's code assignment using the following rules:

   a. First create a 6x8 array containing the preferred set of codes where location (1,1) represents the first possible code position on the first line of the medical certification and location (6,8) represents the last possible code position on the last possible line of the certification. (NOTE: Since the average record contains only three codes, most locations will be blank.)

   b. Create a parallel array containing coder 1 codes.

   c. Read through the array in order, across each line from line 1 through line 6.

   d. If both codes for line 1, code 1 are null, then examine the next location.

   e. Otherwise, determine if the codes are equal.

      1) If so, charge no errors.

      2) If not and the preferred code is blank, charge an error for an incorrect code.

      3) If not and the preferred code is not blank, determine if the code in the preferred set is assigned by the coder elsewhere on the record.

         a) If so, charge an error for a correct code out of position.

         b) If not, charge an error for an incorrect code.

f. Examine the next location repeating the above process until location (6, 8) is examined.

g. If the place of accident or reject code is not equal to the preferred code, charge an error for each incorrect code.

Examples of preferred set creation and corresponding error assignment are as follows. A sample listing is shown as appendix 4.

Coder Status	Multiple Cause Codes	Place of Injury	Reject Code	Number of Errors: Code Not Present	Number of Errors: Code Present But in Wrong Location
Coder 1	4019 410 4140*)599 &9289	1		0	0
Coder 2	4019 410 4140*)599 &9289	1		0	0
Coder 3	4019 411 4148 412*)599 &9289	1	9	4	0
Preferred Set	4019 410 4140*)599 &9289	1			
Coder 1	4019/4140 410	1	1	3	0
Coder 2	4029/4140		1	1	0
Coder 3	4039		1	2	0
Preferred Set	XXX/4140		1		
Coder 1	2506/2500 2503			0	0
Coder 2	2506/2500 2503			0	0
Coder 3	2506/2503 2500			0	2
Preferred Set	2506/2500 2503				
Coder 1	4019/4039			1	1
Coder 2	4029 4039/4019			1	1
Coder 3	4019 4039/4019			0	0
Preferred Set	4019 4039/4019				
Coder 1	5939 586/8789/(20*4140 4274 &887	9	9	2	0
Coder 2	5939 586/&8789/(20 (21*4140	9	9	2	0
Coder 3	5939 586/&8789/(20*4140 4274	9	9	0	0
Preferred Set	5939 586/&8789/(20*4140 4274	9	9		

5. Error Summary - Errors are totalled for each batch and printed for coder 1 and coder 2 (see appendix 5). The total number of code errors includes multiple cause errors plus place of injury, reject code, and ampersand errors. Multiple cause code errors for coder 1 are shown in two components: incorrect codes and correct codes placed in the wrong location.

   Also shown is the number of codes in the sample defined as the number of codes in all lines of all sample certificates. For a given coder, the number of codes for a record is the number of locations which are not blank in both the coder 2 and preferred record.

6. Processing - As soon as practicable after a given batch has been coded by all three coders, it is submitted alone (or with others) to the computer for quality control processing. The data are sorted in ascending order by data year, batch, State, component of reporting area, State file number, and coder status (major to minor).

7. Evaluation - When the output listing (see appendices 4 and 5) is received from the computer, it is reviewed for a "successful run" and resubmitted if necessary. For "successful runs," the multiple cause error rate is computed and posted to the coder's "Employee Assignment Record" (see appendix 6). The listing is forwarded to the supervisor for action. For those batches not exceeding the applicable error tolerance (see appendix 7) on any of the three coders, the supervisor reviews errors with the coders if she deems it helpful.

   For batches on which the production coder's errors exceed the tolerance, the supervisor reviews the quality control printout to determine the necessary update procedure. In most cases, it is determined that the production coder's work needs updating and a fourth coder (or the original production coder in some cases) dependently verify/corrects the production coder's work (or her own work) on the key-to-disk system in "find" mode. These corrected coder/records are then resubmitted for a computer match against the original coder 2 and 3 records with generation of a new printout for posting and review. (Coder 2 and 3 error rates are not reposted.) The cycle continues until the batch has an acceptable production error rate.

   Occasionally poor quality coding in one of the samples has caused artificial inflation of the production coder's error rate. In such cases, a fourth coder independently recodes the sample using coder status 2 or 3 depending on the sample being coded. These corrected coder/records are then resubmitted for a computer match against the original production coder and the other sample coder with generation of a new printout for posting and review. (The new error rates are posted for the production coder and the other sample coder, but the sample coder whose work was updated keeps the original error rate.)

   After the coding is complete on such batches, the supervisor reviews the errors (see appendix 4) with the coder(s) to detect specific problem

areas. For batches on which only the sample coder's error rates exceed the tolerance, the errors are also reviewed with the coder(s), even though data file correction is not required.

8. File - for purposes of Division of Vital Statistics data evaluation and preparation of the technical appendix, all graphs, charts, and error listings are retained 18 months after the final data file is released from the Data Preparation Branch.

SECTION IV - ACME PROCESSING

Each batch of data passing initial quality control procedures is eligible for processing through ACME (job ACMEBTCH) as specified in "Computer Installation Instructions for the Automated Classification of Medical Entities (ACME ICD-9)." In ACMEBTCH, ACME program logic performs the following:

1. Checks the multiple cause codes and format for validity; rejects those that are invalid; rejects records with intentional reject code = 5 and 9.

2. If codes and format are found to be valid and record is not to be intentionally rejected,

   a. assigns an unconditional underlying cause of death through application of nonambivalent selection and modification entries in the decision tables or

   b. assigns a conditional underlying cause of death when one or more ambivalent table entries are encountered by assuming yes, continuing the selection/modification process, and rejecting the record for review, or

   c. assigns no underlying cause of death because of lack of a causal entry in the decision tables and rejects the record for manual underlying cause coding.

3. If an absolute ACME underlying cause assignment is made and a manually assigned underlying cause is in positions 18-21, compares the two assignments and rejects those with differences for review.

Records which pass these edit criteria and have an absolute underlying cause of death assigned are written to a "good" output file in which the data are reformatted into a 215-character record (see appendix 8). Records failing an edit criterion are written to a "bad" record output file in the same format as the input record but with an action code 2 in location 102 and the ACME assigned underlying cause of death in the manually assigned underlying cause of death field (locations 18-21) (see appendix 9). (Is blanked if ACME could not assign an underlying cause of death.) The latter enables ACME to use its initial underlying cause as the final underlying cause of death without further coding if such action is approved in the nosological review of the reject list. If the ACME underlying cause is in error and, therefore, cannot

be used, a corrected underlying cause is supplied to the system through the manual underlying cause field.

The purpose of action code 2 is to cause the system in its update phase (i.e., second pass of a file) to execute its editing and validation feature but skip the underlying cause selection portion of the program logic and take the code in locations 18-21 as its underlying cause-of-death. Assuming all formatting and input and output codes are valid, the system then writes the previously rejected records onto its good output file.

A. Reject Lists

1. Messages - Messages are generated on a record-by-record basis corresponding to reason for edit failure (see appendix 10) and are listed in a fashion which gives the entire logic utilized by ACME in processing a given record.

   There are four categories of messages which are produced by ACME for rejected records:

   a. Messages which indicate the need to correct multiple cause codes and/or format and to manually assign an underlying cause.

      Format Error

      TOO MANY LINES

      TOO MANY *'S

      TOO MANY CODES PER LINE

      Code Error

      INVALID DIGIT IN CODE

      WRONG LENGTH CODE

      INVALID CODE XXXX

      INVALID CODE IN PARENTHESES

   b. Messages which indicate the need to manually assign an underlying cause.

      Cause Not Addressed in Tables:

      NO ENTRY IN TABLE C FOR CODE XXXX

Intentional Reject:

REJECT CODE = 5 (inconsistent duration which cannot be automatically resolved by ACME)[1]

REJECT CODE = 9 (more than four due to's)

Invalid ACME Underlying Cause:

XXXX IS INVALID UNDERLYING CAUSE

INVALID MANUAL UNDERLYING CAUSE = XXXX (applicable only to second pass processing)

Other:

CIRCULAR LINKAGE LOOP

c. Messages which indicate the need to verify and possibly correct the ACME underlying cause assignment.

Ambivalent Table Entries:

CAN XXXX BE DUE TO YYYY	MAYBE
XXXX DS YYYY	MAYBE
XXXX SENDC YYYY	MAYBE
XXXX SENMC YYYY ZZZZ	MAYBE
XXXX IDDC YYYY ZZZZ	MAYBE
XXXX LMP YYYY	MAYBE
XXXX SMP YYYY	MAYBE
XXXX LDP YYYY	MAYBE

[1] Reject codes 1-4 are automatically resolved by ACME without rejection of records for manual underlying cause of death coding.

ACME/Manual Discrepancy:

MANUAL UNDERLYING CAUSE = XXXX

ACME UNDERLYING CAUSE = YYYY

In these cases, the ACME assignment is conditional. If in review of the record the conditional underlying cause is found to be correct, no correction need be made.

d. Messages which may accompany the above types but are informational in nature and give the logic followed in assigning the underlying cause. Such messages require no action. The following list is organized by selection/modification rule for sake of clarity:

Selection Rule:

CAN XXXX BE DUE TO YYYY YES

CAN XXXX BE DUE TO YYYY NO

TUC = XXXX SELECTION RULE

Rule 3:

XXXX DS YYYY

XXXX DSC YYYY ZZZZ

Rule 4:

XXXX IS SENILITY

XXXX SENDC YYYY ZZZZ

XXXX SENMC YYYY ZZZZ

Rule 5:

XXXX IS ILL-DEFINED

TUC IS ILL-DEFINED: RESELECT

XXXX IS TUC (765-766)

XXXX IS NON-ID FROM PART II

XXXX IS ID TUC FROM PART I

XXXX IS ID TUC FROM PART II

Rule 5-Con.

XXXX IS ID TUC

XXXX IDDC YYYY ZZZZ

Rule 6:

XXXX IS TRIVIAL

XXXX IS FROM PART II

Rule 7:

XXXX LMP YYYY

XXXX LMC YYYY ZZZZ

XXXX LDP YYYY

XXXX LDC YYYY ZZZZ

CONFLICT IN LINKAGE

Rule 8:

XXXX SMP YYYY

XXXX SMC YYYY ZZZZ

XXXX SDC YYYY ZZZZ

CONFLICT IN SPECIFICITY

Recode E-Codes:

RECODE E-CODE XXXX

Priority to Ampersand:

TUC IS MED-CARE: PREFER AMP XXXX

TUC IS N-CODE: PREFER AMP-E-CODE XXXX

TUC IS N-CODE EXCEPTION: RESELECT

TUC IS E-CODE EXCEPTION: PREFER AMP XXXX

Other:

XXXX CONVERTED TO YYYY

MANUAL UC = XXXX ACME UC = XXXX

TUC = XXXX

IGNORE INCONSISTENT DURATION

The abbreviations used in the preceding messages are decoded in the following manner:

XXXX	stands for a code
YYYY	stands for a code
ZZZZ	stands for a code
TUC	stands for Temporary Underlying Cause
TUC2	stands for a second Temporary Underlying Cause
MED-CARE	stands for Medical Care Code
AMP	stands for Ampersanded Code
E-Code	stands for External Cause of Injury and Poisoning Code
N-Code	stands for Nature of Injury and Poisoning Code
Manual UC	stands for manually assigned underlying cause code
ACME UC	stands for underlying cause assigned by the ACME program
Non-ID	stands for Non-Ill-Defined Condition
DS	stands for Direct Sequel
DSC	stands for Direct Sequel Combination
SENDC	stands for Senility "Due To" Combination
SENMC	stands for Senility With Mention of Combination
ID	stands for Ill-Defined Condition
IDDC	stands for Ill-Defined "Due To" Combination
LMP	stands for Linkage "With Mention Of" Preference

LMC stands for Linkage "With Mention Of" Combination

LDP stands for Linkage "Due To Position" Preference

LDC stands for Linkage "Due To Position" Combination

SMP stands for Specificity "With Mention Of" Preference

SMC stands for Specificity "With Mention Of" Combination

SDC stands for Specificity "Due To Position" Combination

2. Correction Instructions - In correcting records, the following procedure is used:

   a. The certificates and any available additional information for the States to which the ACME reject listing corresponds are obtained.

   b. For each record on the list, problems with the underlying cause of death assignment indicated by the messages are resolved by taking one of the following actions:

      1) An underlying cause of death is assigned where ACME could not make such an assignment, or

      2) an erroneous conditional underlying cause assignment made by ACME is corrected, or

      3) ACME is allowed to keep the conditional assignment it made if that assignment is correct. (This is the default option and requires no action by the individual processing the reject lists.)

      In addition, any error in multiple cause coding or format indicated by the messages is corrected. Specific instructions for each message are given in table 2.

TABLE 2
MESSAGES REQUIRING ACTION

Messages requiring action	Action taken: Correct multiple cause codes and/or format	Manually assign underlying cause	Check ACME underlying cause and make manual assignment if incorrect
TOO MANY LINES	X	X	
TOO MANY*'s	X	X	
TOO MANY CODES PER LINE	X	X	
INVALID DIGIT IN CODE	X	X	
WRONG LENGTH CODE	X	X	
INVALID CODE XXX	X	X	
INVALID CODE IN PARENTHESES	X	X	
NO ENTRY IN TABLE C FOR CODE XXXX		X	
REJECT CODE = 5		X	
REJECT CODE = 9		X	
XXXX IS INVALID UNDERLYING CAUSE		X	
INVALID MANUAL UC (second pass only)		X	
CIRCULAR LINKAGE LOOP		X	
CAN XXXX BE DUE TO YYYY MAYBE			X
XXXX DS YYYY MAYBE			X
XXXX SENDC YYYY ZZZZ MAYBE			X
XXXX SENMC YYYY ZZZZ MAYBE			X
XXXX IDDC YYYY ZZZZ MAYBE			X
XXXX LMP YYYY MAYBE			X
XXXX LMC YYYY MAYBE			X
XXXX SMP YYYY MAYBE			X
XXXX LDP YYYY MAYBE			X
MANUAL UNDERLYING CAUSE = XXXX			X
ACME UNDERLYING CAUSE = YYYY			X

c. All corrections are made in red pencil directly on the listing. When codes are corrected, the old code is entirely crossed out and the correct code is entered above the deleted code.

To blank an entire field, the original codes are marked out and "bbb's" are written above the field.

Data year, batch, State, component of reporting area, and State file number (in ascending sort major to minor) are control fields and cannot be changed without deleting the entire record and adding a substitute record. To do this, "delete" is indicated on the listing beside the old record. The correct ID is inserted along with the correct codes for all fields on the new record with an "add" noted beside it. When keyentered as noted in paragraph 3, this causes the system to delete the original record and add the new record. "Delete" (and "add") are used to delete (or add) any record from (to) the file.

NOTE: Instruction c applies to procedures where nosological review of the listing and key entry of update records are carried out in separate steps. For organizations where review and key entry are carried out in one step, no corrections need be made directly on the listing. Also, see paragraph 3 entitled "Preparation of Correction Records."

d. In reviewing the reject listing, corrections are not confined solely to the problems identified by ACME. Other errors the reviewer notices are corrected. For example, if the reviewer is assigning an underlying cause to a "reject code = 9" record and notices that a condition code is in error, that error is also corrected. Likewise, errors in the place of injury, shipment number, reject code, and coder status fields are corrected.

e. When the reviewer discovers that an ACME problem indicates the need for an ACME decision table change, the record correction indicated in the preceding paragraphs is made. Also, the listing is flagged, appendix 12 is completed, and the proposed decision table change is referred to the supervisor.

3. Preparation of Correction Records - ACME files are sorted on the following items (major to minor) which are used as control data and must be entered for each corrected record in the same manner as they were entered for original processing of the record. This means that the codes for each item must be keyed as given on the reject listing.

Item	Positions
Data year	1
Batch number	14-16
State code	11-12
Component of reporting area	13
State file number	5-10

Only those records on the listing which have a correction are processed. Within each record, only those fields with a correction are entered. However, each field with a correction must be rekeyed in its entirety (including the multiple cause field). Where a field is to be changed from a valid code to a blank, b's are entered in the entire field.

The record format for correction records is the same as the ACME input record format originally submitted to NCHS (see table 1). However, any code key-entered into the manual underlying cause field (locations 18-21) is used by ACME during second pass processing as the underlying cause of death assignment for that record. ACME replaces its original output underlying cause with the manual underlying cause.

For records noted "delete" on the reject listing, the control items are keyed as given above with "DELETE" in positions 23-28. For records noted "add" on the reject listing, the entire record is keyed in the ACME input format with "ADD" in positions 103-105.

NOTE: Again, the paragraphs above are written to correspond to a procedure whereby review and key entry are separate steps in processing. Where they are merged into one step, only the applicable instructions should be followed.

For States submitting ACME input data to NCHS, the correction records are submitted on tape to NCHS. NCHS matches the corrected records to the original file. These records are then substituted for the rejected records on a field-by-field basis and reprocessed through ACME to check code and format validity. If the format is incorrect or codes are invalid, the record again rejects for correction. Where this second set of rejected codes is very small, corrections are handled by telephone.

At NCHS and for States fully utilizing the ACME system, the corrected records are submitted through job ACMEUPDT which updates the rejected records on a field-by-field basis. The update is checked for successful execution, and the updated file is reprocessed through ACMEBTCH before the file is submitted to NCHS.

B. Control Totals

For control purposes, ACME produces the statistical table given in appendix 11. These data are utilized for the purpose of monitoring performance of the ACME system (processor and decision tables) in terms of its ability to assign an accurate underlying cause and to make adjustments as necessary. Action on the basis of this listing and other tables produced on an ad hoc basis for evalution purposes is made on an annual basis prior to processing each data year file.

SECTION V - AXIS TRANSLATION

After the VSCP data and the non-VSCP data have been updated from ACME processing, the files are ready for axis translation by TRANSAX. The axis translation process automatically converts the multiple cause codes on each record for an entity axis of classification to a record axis of classification based on a set of tables containing predefined linkage relationships among entity codes. This creates a set of multiple cause codes (without placement designation) wherein each code is assigned within the context of the medical certification as a whole utilizing accepted linkage relationships among conditions. This augments the original entity axis set in which each code as assigned with placement designators but with minimal regard to other entities on the certification. Both sets of codes (entity axis and record axis) are retained on the TRANSAX output tape (see appendix 13), each having its own distinctive application to multiple cause of death data analysis.

A. Reject Lists

TRANSAX rejects no records for nosological review. The input data have already been validated by ACME, and ambivalent table entries are inputed to the most probable result.

B. Control Totals

TRANSAX control totals are shown in appendix 14. In addition to these control totals, special statistical tables are run on an ad hoc basis to monitor each aspect of the axis translation process and provide the basis for any necessary corrective action.

SECTION VI - QUALITY CONTROL OVER MEDICAL CODING - VSCP DATA

Under the VSCP, quality control over mortality medical coding is carried out at three different levels. First, prior to submitting data for use by NCHS, each State coder must satisfactorily complete a course in multiple cause of death classification. This course includes a requirement that each trainee practice code hypothetical and actual case certificates until they demonstrate their comprehension of all of the coding rules. Secondly, an independent quality control program is exercised in each State office. In the State, the program is developed and administered in a manner which is most practicable for the State, yet meets contractual commitments to NCHS that the data be produced with no greater than 6.25 percent of the multiple cause codes in error. Thirdly, NCHS receives from the State a separate monthly transmittal of approximately 50 death certificates that NCHS nosologists multiple cause code for quality control purposes. For each certificate, the NCHS codes are compared with State codes; and the resultant differences, if excessive, are discussed and resolved between NCHS and State staff. Where indicated, procedures are revised, retraining is given by NCHS and/or the State, and/or data are retransmitted and updated. For States that submit ACME input data, the quality of the multiple cause coding is evaluted prior to ACME processing by NCHS. If the error rate is excessive, a corrected replacement tape is secured from the State prior to submitting data to ACME. For States that submit ACME/TRANSAX output data, the evaluation and subsequent correction, if necessary, is made prior to any merged record edits at NCHS. The procedures are as follows:

A. Assignment of Differences

In concept, the definition of a coding error for VSCP data is essentially the same as that given earlier for non-VSCP data. In both cases, the algorithm for charging errors specifies that each term on the death certificate must have the correct ICD code and this ICD code must be entered in the proper place on the record. For non-VSCP data, this determination is made automatically by computer software based on up to three independent codings of each sample record. For VSCP data, the computer software only identifies instances in which the NCHS and State code disagree and presents computations in the form of difference rates as opposed to error rates. Assignment of errors is done manually through adjudication of the source of each difference. Finally, because the data are usually evaluated in TRANSAX or ACME output format as opposed to ACME input format, the & symbol is not included in the assignment of errors for VSCP data. This symbol which is a part of selected E codes is used by ACME to select the underlying cause-of-death but is eliminated when the ACME output is written.

To establish whether there is an NCHS/State coding difference on a record, the following steps are carried out by the computer software.

1. Identify the NCHS and State code assignment for each position on each line of the medical certification.

2. If for a given location, both codes are blank, then increment no counters and go to the next location.

3. Otherwise, increment the denominator by one and then determine if the NCHS code for the location is the same as the State code.

   a. If so, charge no error.

   b. If not, then determine if the NCHS code is assigned by the State in another location on the record.

      1) If so, charge an error for a correct code out of position.

      2) If not, charge an error for an incorrect code.

B. Place of Injury and Reject Codes

These are one digit codes which are assigned in only a small percentage of the records. A difference is assigned to the appropriate category if the NCHS and State code assignments are not the same. The denominator for the difference rate is not incremented if both the State and NCHS record contains a blank in the applicable field.

C. Underlying Cause Codes

The underlying cause difference rate is calculated only when NCHS has manually assigned an underlying cause of death code. Again, the NCHS underlying cause is compared with the underlying cause produced by the State and a difference charged if the two codes are not equal. The denominator for the difference rate is incremented only for those records on which NCHS has manually assigned an underlying cause of death.

D. Listing of Records With Differences

During the process of charging differences, each NCHS/State record with one or more coding differences is listed (see appendix 15). The NCHS coded record is printed above the State coded record and the fields are printed in the following order: State code, component of reporting area, certificate number, manual underlying cause, ACME underlying cause, ACME reject code, intentional reject code, and place of injury code followed by the multiple cause codes (on next line). The number of differences assigned to the record is printed out by category as follows:

"MULT C. TE" = the total number of multiple cause coding differences
"MULT C P. E = the number of those differences that could have been eliminated if the code had been place correctly
"PI," "RJ," and "UC" = a "1" under the label indicates a code difference was detected; a "0" indicates the NCHS/State codes matched.

If NCHS coded a certificate that the State did not code, the NCHS coded record is listed with the message "State omitted above sample record."

E. Difference Rates

Difference rates (in percentages) are computed for each monthly shipment of a State's data and presented in a comprehensive statistical table (see appendix 16) that provides a difference rate for each item on the record (multiple cause codes, place of injury, reject, and underlying cause of death). From the overall multiple cause error rate (Total Error (TE)), a subcategory (MC-Positional (PE)) is also presented to identify those codes which would have been correct if only they had been assigned to the proper location on the record. Multiple cause error rates are always based on the entity axis multiple cause codes and not the record axis multiple cause codes provided by TRANSAX. If the entity axis codes are of acceptable quality, then by definition the record axis codes are of acceptable quality.

On almost 1.5 percent of the file, ACME cannot unconditionally assign an underlying cause of death but must reject the record for manual review and underlying cause coding by a nosologist. The error rates for these records are included in the above calculations but are also presented separately in appendix 16. These difference rates are not applicable to those States sending data to NCHS in ACME input format.

Finally, space in appendix 16 is provided for error rates to be "penciled in" once the source of each error is identified. This procedure is described in the following paragraphs.

F. Data Evaluation

To evaluate the acceptability of a State's monthly shipment of data, first from appendix 17 determine the sample size in codes. Then refer to appendix 18. If the combination error rate is less than the applicable level 1 tolerance, the data are acceptable without futher review. If the combination error rate is between the level 1 and level 2 tolerance, the data are acceptable but each difference must be adjudicated to detect problem areas, determine the need for additional training in specific areas, etc. Moreover, such adjudication may reveal that the source of some of the errors is the NCHS quality control file and after adjudication, the State error rate is reduced below the level 1 tolerance. If the combination error rate is above level 2, then the differences are adjudicated to determine if the State error rate is above the level 2 tolerance. If so, the file must be recoded by the State. If not, the data are acceptable but follow up retraining, etc., is required if the State error rate is not below the level 1 tolerance.

G. Adjudication

To determine source of error, all coding differences are adjudicated and divided into "State error," "NCHS error," and "no error charged." Then the actual error rates are computed and written on the statistical table. As each difference is adjudicated, an explanation of the difference is recorded on the printout under the record (see appendix 14) in question. This explanation contains the entity (disease) as it appears on the certificate and an explanation of the coding rule which applies. When the reasons for the differences are repetitive in nature, the explanation is not repeated. Code differences assigned to "no error charged" include those resulting from illegible entries on the NCHS copy of the certificate, decisional entries, and certificates where NCHS did not receive additional information on the medical certification that the State obtained through query to the physician.

SECTION VII - MERGED RECORD

As the demographic and medical records are merged, the following edits (see Part 11 of the Vital Statistics Instruction Manual Series) are carried out and messages are produced for records which:

- have a demographic record but lack a corresponding medical record
- have combinations of age/cause (multiple and underlying) and sex/cause (multiple and underlying) which are considered invalid or improbable for mortality applications
- have invalid cause codes--multiple and underlying
- contain causes (multiple and underlying) considered to be rare in the United States.

A. Coding Specifications

This reject listing is the final stage of manual data processing prior to computer input for tabulation of mortality data for the data year. Experienced underlying cause of death coders are responsible for processing the mortality medical reject listings with the supervisory staff responsible for reviewing work on the reject lists to assure adherence to instructions.

General specifications are as follows:

1. The source microfilm, any available additional information, and the reject listing are used in the processing.
2. Changes are limited to place of injury, age, sex, underlying cause, and the entity axis multiple cause fields. Corrections are made to as many of these fields as necessary to resolve the problem(s) indicated by the message(s). A problem with one field may occasionally require

changes to other fields to retain comparable, accurate data. Code errors noticed by the reviewer but not flagged on the listing for corrective action are also corrected. Errors in record axis codes are corrected by processing the revised entity data through TRANSAX.

3. If any part of a field is changed, the entire field is reentered.

4. If the wrong certificate was originally coded, all fields are corrected.

5. Entire data records cannot be deleted or added at this point in processing.

6. The multiple cause entity axis codes are converted back to input format for purposes of display on the reject listing; however, &'s could not be regenerated. Corrections are made in the free format of the ACME input record.

Specific instructions corresponding to each error message are given in table 3.

TABLE 3
INSTRUCTIONS FOR REJECT LIST PROCESSING

Message	Underlying Cause	Multiple Cause	Demographic	Action
Demographic Medical Cross Edit Age-Underlying Cause Age-Multiple Causes "Entity (Record) Axis Code ____ is incompatible (conditional or absolute) with age" Sex-Underlying Cause Sex-Multiple Cause "Entity (Record) Axis Code ____ is incompatible (conditional or absolute) with sex"	X	X	X	1. Verify with film 2. If medical information is incorrect, underlying and/or multiple cause data are corrected as necessary. 3. If the demographic record is incorrect, the age or sex is corrected as necessary. NOTE: 1. For edits flagged "absolute" either the cause or age/sex field must always be changed. If both are correctly coded based on reporting, applicable causes are changed to the minimum necessary to pass the edit and the age/sex field is left as coded. 2. For edits flagged "conditional," the age/sex and/or cause code(s) are changed only if they are in error.

TABLE 3-Con.

Message	Underlying Cause	Multiple Cause	Demographic	Action
Missing Medical Record ("Unmatched Demographic")	X	X		Entity axis cause codes, underlying cause, and place of injury are coded.
Entity Axis (Record Axis) Code ____ has an invalid character	X	X		Multiple-cause entity axis code(s) are corrected. Underlying cause is corrected as necessary.
Entity Axis locator codes are invalid or out of sequence		X		Multiple cause entity axis codes are corrected.
Invalid Underlying Cause	X			Underlying cause is corrected.
Rare Cause	X	X		1. Verify on film. 2. If improperly coded as rare, underlying cause and/or multiple cause is corrected as necessary. 3. If properly coded and cause is approved by health officer on face of the certificate, no change is made. List with cycle number, certificate number, sequence number, State, and verified code is submitted to Chief, Vital Records Medical Section. 4. If properly coded and cause is not approved on the face of the certi-

TABLE 3-Con.

Message	Underlying Cause	Multiple Cause	Demographic	Action
				ficate, record is flagged for verification with health officer. No change is made to record. a. A copy of the certificate with cycle number, State file number, sequence number, State, all information at top of certificate, all of Part I and Part II, and doctor's name and address is made. b. State code and NCHS code is placed on the certificate. c. Above certificate is submitted to Chief, Vital Records Medical Section. d. On reject list, "XXXX-rare" is circled with blue pencil and initialed to indicate that a certificate was made.

B. Key Entry

A 120 byte control record containing the items listed below is read into the key-to-disk system for each rejected record from a cycle of data. The reject list reviewer locates each record with a change in any field and enters the new data into the key disk record. Fields not requiring a change are left as coded. The input format is designed to allow processing through ACME as well as to incorporate age, sex, and sequence number fields. At this point in processing, the sequence number is the essential control item.

Item	Position	
Data year	1	
Place of injury	2	
Sequence number	3-10	(3-4 is shipment number and 5-10 is State file number in input format given in table 1)
State code	11-12	
Component of reporting area	13	
Age	14-16	(Batch number in input format given in table 1)
Sex	17	(Coder status in input format given in table 1)
Underlying cause	18-21	(If 3-digit code, space position 21)
Reject code	22	
Entity axis codes (free format as coded for ACME input)	23-101	
Action code = 2	102	
Blank	103-106	
Shipment number	107-108	
Blank	109	
State	110-111	
Blank	112	

Item	Position
Component of reporting area	113
Blank	114
State file number	115-120

The correction records are matched against the master reject file, and those not requiring ACME/TRANSAX processing (only age, and/or sex changed) are held pending such processing for records with an underlying cause and/or multiple cause change. The latter group of records is processed through ACME (underlying cause selection logic suspended) and TRANSAX to produce an updated medical file. At that point, the new demographic medical data are re-edited for invalid codes and absolute age/cause, sex/cause incompatibility. Occasionally, fail edit records remain in the file after the initial correction cycle. In such cases, these higher order rejects are recycled until no further records reject.

SECTION VIII - INCORPORATION OF ADDITIONAL INFORMATION (NON-VSCP DATA ONLY)

Additional information (AI) received after the records are initially processed is incorporated into the data file at the end of the year in the following manner.

1. The medical certification portion of the "AI" certificate and the original certificate are matched to determine if there have been changes which affect the underlying cause assignment or multiple cause code assignment, or place of injury code.

2. For certificates affecting one or more code assignments, a new record is keyed in the format of table 1 entering control data and all fields including those which are unchanged. The underlying cause of death is assigned manually.

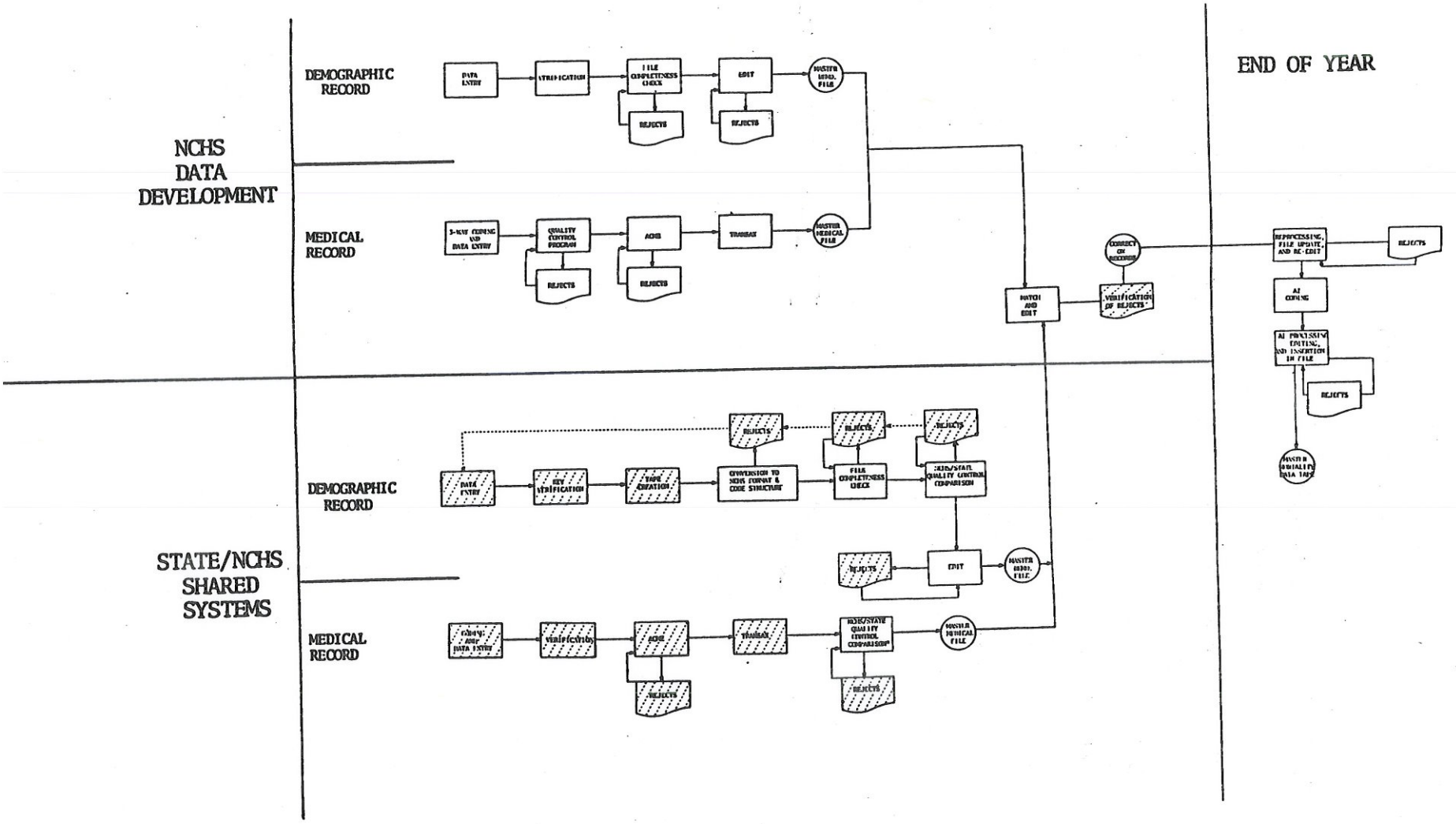
3. The new record is processed through the ACME and TRANSAX systems in the conventional manner except that ACME does not assign an underlying cause on these records since action code 2 is being used. The new data then replace the old data on the mortality master data file.

SECTION IX - RARE CAUSE VALIDATION

Once corrected rejects have been re-edited, records with a rare underlying cause or multiple cause code are listed on the rare cause validation list (appendix 19). This list is then verified by nosologists against a manual record cumulated on a monthly basis reflecting the results of verification calls to State offices. This enables a final check to assure that no rare causes have been missed in the validation process.

APPENDIX 1

PROCESSING OF MORTALITY DATA



Denotes functions performed in total or in part in State offices for States participating in State/NCHS shared systems.

* This step is carried out prior to ACME processing for those States which submit input data to NCHS for ACME and TRANSAX processing on the NCHS computer.

APPENDIX 2

ACME INPUT FORMAT

Field Size	Position(s)	Item	State Code As
1	1	Data year	5
1	2	Place of injury	Refer to Part 2b Instruction Manual
2	3-4	Shipment number	Can be blanked if necessary
6	5-10	State file number	Assign from certificate
2	11-12	State code	Can be blanked if necessary
1	13	Component of reporting area	Can be blanked if necessary
3	14-16	Batch number	Can be blanked if necessary
1	17	Coder status	Can be blanked if necessary
4	18-21	Manually assigned underlying cause	Refer to Part 2a Instruction Manual
1	22	Reject code	Refer to Part 2b Instruction Manual
79	23-101	Conditions	Refer to Part 2b Instruction Manual
19	102-120	Blanks	Blank

APPENDIX 3

ICD-9 MULTIPLE CAUSE TRANSCRIPTION SHEET

DATA YEAR _____ MONTH _____ STATE ________ CRA _____ LOT NO. _____ CODER STATUS ______

CERTIFICATE	I									U.C.
__________	/									REJECT
	/									
	/									
PLACE ACC.__	/									
	II*									
CERTIFICATE	I									U.C.
__________	/									REJECT
	/									
	/									
PLACE ACC.__	/									
	II*									
CERTIFICATE	I									U.C.
__________	/									REJECT
	/									
	/									
PLACE ACC.__	/									
	II*									
CERTIFICATE	I									U.C.
__________	/									REJECT
	/									
	/									
PLACE ACC.__	/									
	II*									
CERTIFICATE	I									U.C.
__________	/									REJECT
	/									
	/									
PLACE ACC.__	/									
	II*									
CERTIFICATE	I									U.C.
__________	/									REJECT
	/									
	/									
PLACE ACC.__	/									
	II*									

A C M E ---- MORTALITY MEDICAL DATA SYSTEM QUALITY CONTROL OVER CONDITION CODING DATE 05/30/86 PAGE 1
NATIONAL CENTER FOR HEALTH STATISTICS

NO	Y	LOT	ST	CP	SH	CERT	C	UC	CONDITIONS	A	R	ERR
1	5	434	05	0	13		1		5701/5733*4149 410 436			0
	5	434	05	0	13		2		5701/5733*410 436			3
	5	434	05	0	13		3		5701/5733*4149 410 436			0
									5701/5733*4149 410 436			
2	5	434	05	0	13		1		)752 &9504)683			4
	5	434	05	0	13		2		)090 &959*)090			0
	5	434	05	0	13		3		)090 &959*)090			0
									)090 &959*)090			
3	5	435	05	0	13		1		7991/486*5621 5698			4
	5	435	05	0	13		2		7991/)973*&5621 5697 &8788			0
	5	435	05	0	13		3		7991/)973*&5621 5697 &8788			0
									7991/)973*&5621 5697 &8788			
4	5	435	05	0	13		1		7991/1985/185			1
	5	435	05	0	13		2		7991/1988/185			0
	5	435	05	0	13		3		7991/1988/185			0
									7991/1988/185			
5	5	435	05	0	13		1		4275/4279/185			2
	5	435	05	0	13		2		4275/4279/1990 185			0
	5	435	05	0	13		3		4275/4279/1990 185			0
									4275/4279/1990 185			
6	5	436	05	0	13		1		(54*8147			1
	5	436	05	0	13		2		(54*&8147			0
	5	436	05	0	13		3		(54*&8147			0
									(54*&8147			
7	5	436	05	0	13		1		4275/486/4284*5990 3109 436			0
	5	436	05	0	13		2		4275/4284 486*5990 3109 436			3
	5	436	05	0	13		3		4275/486/4284*5990 3109 436			0
									4275/486/4284*5990 3109 436			
8	5	436	05	0	13		1		4275//3439			1
	5	436	05	0	13		2		4275/3499/3439			0
	5	436	05	0	13		3		4275/3499/3439			0
									4275/3499/3439			
9	5	436	05	0	13		1		7991/2765/2960/319			1
	5	436	05	0	13		2		7991/2765/7809/319			1
	5	436	05	0	13		3		7991/2765//319			1
									7991/2765/XXXX/319			
10	5	436	05	0	13		1		5118/0948/7596			1
	5	436	05	0	13		2		5118/0948			0
	5	436	05	0	13		3		5118/0948			0
									5118/0948			

NO	Y	LOT	ST	CP	SH	CERT	C	UC	CONDITIONS	A	R	ERR
11	5	437	05	0	13		1		(68/)02/&8120			1
	5	437	05	0	13		2		(68/)01/&8120			0
	5	437	05	0	13		3		(68/)01/&8120			0
									(68/)01/&8120			
12	5	438	05	0	13		1		(61/(61/&8199			1
	5	438	05	0	13		2		(61/(61/&8150			0
	5	438	05	0	13		3		(61/(61/&8150			0
									(61/(61/&8150			
13	5	438	05	0	13		1		7855/4349 410/4409			1
	5	438	05	0	13		2		7855/4340 410/4409			0
	5	438	05	0	13		3		7855/4340 410/4409			0
									7855/4340 410/4409			
14	5	438	05	0	13		1		7991/5185/1534 2738*5939			1
	5	438	05	0	13		2		7991/5185/1534*2738 5939			3
	5	438	05	0	13		3		7991/5185/1534 2738*586			1
									7991/5185/1534 2738*XXXX			
15	5	438	05	0	13		1		1539/5609		1	1
	5	438	05	0	13		2		1539/5609*5609		1	0
	5	438	05	0	13		3		1539/5609*5609		1	0
									1539/5609*5609		1	
16	5	438	05	0	13		1		0389/)966/&8782 &5699*2554			0
	5	438	05	0	13		2		0389/)974/&8782 &5699*2554			1
	5	438	05	0	13		3		0389/)966/&8782 &5699 2554)966			3
									0389/)966/&8782 &5699*2554			
17	5	439	05	0	13		1		7855/0384*1629			3
	5	439	05	0	13		2		7855/)985*&1629 &8786			0
	5	439	05	0	13		3		7855/)985*&1629 &8786			0
									7855/)985*&1629 &8786			
18	5	439	05	0	13		1		4275/4149*586			0
	5	439	05	0	13		2		4275/4140*586			1
	5	439	05	0	13		3		4275/4149*586			0
									4275/4149*586			
19	5	440	05	0	14		1		514//4349			1
	5	440	05	0	14		2		514//438			0
	5	440	05	0	14		3		514//438			0
									514/438			
20	5	440	05	0	14		1		7991/1129 485/585			2
	5	440	05	0	14		2		7991/1124/585			0
	5	440	05	0	14		3		7991/1124/585			0
									7991/1124/585			

Appendix 5

LOT	NUMBER IN LOT	PERCENT SELECTED	C O D E R 1 TOTAL ERRORS	CODE NOT PRESENT	PRESENT WRONG LOC	C O D E R 1 # CODES	PERCENT	REC ERR	C O D E R 2 #CODES	ERRORS	PERCENT	REC ERR
434	2509	1.00	4	4	0	74	5.41	4.00	73	3	4.11	4.00
435	2500	1.00	7	6	1	77	9.09	12.00	77	0	0.00	0.00
436	2750	0.98	4	4	0	89	4.49	14.81	89	4	4.49	7.41
437	2500	1.00	1	1	0	84	1.19	4.00	84	0	0.00	0.00
438	2500	1.00	4	3	1	73	5.48	16.00	74	4	5.41	8.00
439	2224	0.99	3	3	0	63	4.76	4.55	63	1	1.59	4.55
440	1776	1.01	4	3	1	54	7.41	16.67	53	0	0.00	0.00

SECTION TOTALS

APPENDIX 6

VITAL RECORDS SECTION
MEDICAL CODING UNIT

EMPLOYEE ASSIGNMENT RECORD

Employee ____________ Data Year ________ Page ________

Lot Nc.	Lot Size	Coder Status	Cond. Error Rate

Lot No.	Lot Size	Coder Status	Cond. Error Rate

Lot No.	Lot Size	Coder Status	Cond. Error Rate

Appendix 7

ACCEPTANCE AND REJECTION NUMBERS FOR SAMPLING VERIFICATION OF MORTALITY MEDICAL CODING

Number of codes[1]	Accept if number of error codes is equal to or less than	Reject if number of error codes is equal to or greater than
35-46	4	5
47-57	5	6
58-69	6	7
70-80	7	8
81-92	8	9
93-103	9	10
104-115	10	11
116-126	11	12
127-138	12	13

[1] Average batch size is 2,500-3,000 records of approximately 3 codes each. A one-percent sample will usually range between 75 and 90 codes. The ranges are set up so that the acceptable error rate at the upper bound of each range is about 8.75 percent.

APPENDIX 8

ACME "GOOD" RECORD OUTPUT FILE

(Contains records with no fail edit messages or flags and records where all fail edit messages or flags have been resolved through manual corrections.)

Field Size	Positions	Item	Source
1	1	Data year	Input
2	2-3	State of death	Input
1	4	Component of reporting area	Input
6	5-10	Certificate number	Input
2	11-12	Shipment number	Input
3	13-15	Batch number	Input
1	16	Coder status	Input
6	17-22	Sequence number	Generated
1	23	Type record: 1 if not previously rejected for manual review 2 if not previously rejected for manual review	Generated
1	24	Intentional reject	Input
1	25	ACME/Manual UC comparison (Code 1 if different) (Code 0 if same) (Code b if manual UC field is blank)	Generated
4	26-29	Manual underlying cause	Input
4	30-33	ACME underlying cause	Generated
1	34	Place of injury	Input

"GOOD" RECORD OUTPUT FILE-Con.

Field Size	Positions	Item	Source
140	35-174	Fixed format condition codes (Maximum of 20 codes of 7 positions each)	Reformatted from Input
		Format of each 7 position code	
		1 position: for part/line number 1 = Part I, line 1 2 = Part I, line 2 3 = Part I, line 3 4 = Part I, line 4 5 = Part I, line 5 6 = Part II	Generated
		1 position for sequence within line Codes: 1-8 (maximum number codes per line)	Generated
		4 positions for condition code Remove & before codes Codes with leading "(" convert to 8 as leading digit Codes with leading ")" convert to 9 as leading digit	Generated and Input
		1 position for nature of injury flag Code 1 for condition codes having leading digit of "(" or ")" Code 0 otherwise	Generated
35	175-209	Fixed format parenthetical codes (Maximum of 5 codes of 7 positions eash) Format of each code same as above except blank sequence within line (1 position)	Reformatted from Input
6	210-215	Blanks	

APPENDIX 9

ACME "BAD" RECORD OUTPUT FILE

Field Size	Position(s)	Item
1	1	Data year
1	2	Place of injury
2	3-4	Shipment number
6	5-10	Certificate number
2	11-12	State of death
1	13	Component of reporting area
3	14-16	Batch number
1	17	Coder status
4	18-21	Manually assigned underlying cause
1	22	Reject code
79	23-101	Conditions
1	102	Action code (coded as 2)
18	103-120	Blanks

```
YR ACC SHP  CERT# ST CMP LOT CD MANU REJ  CONDITIONS

 5      03          O  051  1          486/2900 2989
                                       CAN 486  BE DUE TO 2900 YES
                                       TUC=2900 SELECTION RULE
                                       2900 LMC   2989 2903 MAYBE
                                       MANUAL UC=     ACME UC=2903

 5      03          O  051  1          486/2880/1749*2900
                                       CAN 486  BE DUE TO 1749 YES
                                       CAN 2880 BE DUE TO 1749 MAYBE
                                       TUC=1749 SELECTION RULE
                                       MANUAL UC=     ACME UC=1749

 5      03          O  051  1          5724/5715/5699
                                       CAN 5724 BE DUE TO 5699 YES
                                       CAN 5715 BE DUE TO 5699 YES
                                       TUC=5699 SELECTION RULE
                                       CONFLICT IN SPECIFICITY
                                       5699 SMP   5724
                                       5699 SMP   5715
                                       CAN 5724 BE DUE TO 5715 YES
                                       TUC=5715 SELECTION RULE
                                       5699 SMP   5715      MAYBE
                                       MANUAL UC=     ACME UC=5715

 5      03          O  051  1          4939/486
                                       CAN 4939 BE DUE TO 486  YES
                                       TUC=486  SELECTION RULE
                                       486  SMP   4939      MAYBE
                                       MANUAL UC=     ACME UC=4939

 5      03          O  051  1          3481 (68 &8160 (65 (64 (08 (07 (66 5997
                                       TOO MANY CODES PER LINE

 5  9   03          O  051  1          3109/)33 &912 7991
                                       CAN 3109 BE DUE TO )33  MAYBE
                                       TUC=)33  SELECTION RULE
                                       TUC IS N-CODE: PREFER AMP-E-CODE 912
                                       MANUAL UC=     ACME UC=912

 5      03          O  051  1       5  4140/4280/4274
                                       REJECT CODE=5

 5      03          O  051  1          2510/2500/2765 7806/4409
                                       CAN 2510 BE DUE TO 4409 MAYBE
                                       CAN 2500 BE DUE TO 4409 NO
                                       CAN 2510 BE DUE TO 2500 YES
                                       CAN 2500 BE DUE TO 2765 NO
                                       CAN 2500 BE DUE TO 7806 NO
```

```
YR ACC SHP  CERT# ST CMP LOT CD MANU REJ  CONDITIONS

                                          TUC=2500 SELECTION RULE
                                          2500 LMC    2510 2502 MAYBE
                                          MANUAL UC=      ACME UC=2502

5       03            0  051   1        4275/5308/4561*4140
                                          CAN 4275 BE DUE TO 4561 YES
                                          CAN 5308 BE DUE TO 4561 YES
                                          TUC=4561 SELECTION RULE
                                          4561 LMC    5308 4560 MAYBE
                                          MANUAL UC=      ACME UC=4560

5       03            0  051   1        1990/2019
                                          CAN 1990 BE DUE TO 2019 MAYBE
                                          TUC=2019 SELECTION RULE
                                          MANUAL UC=      ACME UC=2019

5       03            0  051   1        3481/3319/4409*311 2639
                                          CAN 3481 BE DUE TO 4409 YES
                                          CAN 3319 BE DUE TO 4409 YES
                                          TUC=4409 SELECTION RULE
                                          4409 SDC    3319 4370 MAYBE
                                          MANUAL UC=      ACME UC=4370

5       03            0  051   1        0389/&5570 5697/)974*5672 &8786
                                          CAN 0389 BE DUE TO )974 YES
                                          CAN 5570 BE DUE TO )974 MAYBE
                                          CAN 5697 BE DUE TO )974 YES
                                          TUC=)974 SELECTION RULE
                                          TUC IS N-CODE: PREFER AMP-E-CODE 8786
                                          TUC IS MED-CARE: PREFER AMP 5570
                                          MANUAL UC=      ACME UC=5570

5  9    03            0  051   1        5070*(20 7803 &887
                                          TUC=5070 SELECTION RULE
                                          5070 DS     (20        MAYBE
                                          TUC IS N-CODE: PREFER AMP-E-CODE 887
                                          MANUAL UC=      ACME UC=887

5       03            0  051   1        4299 5189/2989/7991
                                          CAN 4299 BE DUE TO 7991 MAYBE
                                          CAN 5189 BE DUE TO 7991 NO
                                          CAN 4299 BE DUE TO 2989 YES
                                          CAN 2989 BE DUE TO 7991 NO
                                          TUC=2989 SELECTION RULE
                                          MANUAL UC=      ACME UC=2989

5       03            0  051   1        7991/1991/1977 1982 4988*5789
                                          INVALID CODE 4988
```

YR	ACC	SHP	CERT#	ST	CMP	LOT	CD	MANU	REJ	CONDITIONS
5		03			0	051	1			7855/2880/2050*496
										CAN 7855 BE DUE TO 2050 YES
										CAN 2880 BE DUE TO 2050 MAYBE
										TUC=2050 SELECTION RULE
										MANUAL UC= ACME UC=2050
5		03			0	051	1			7855/2880/2030*2773
										CAN 7855 BE DUE TO 2030 YES
										CAN 2880 BE DUE TO 2030 MAYBE
										TUC=2030 SELECTION RULE
										MANUAL UC= ACME UC=2030
5		03			0	051	1			5729/5716/5761*5849 556
										CAN 5729 BE DUE TO 5761 YES
										CAN 5716 BE DUE TO 5761 MAYBE
										TUC=5761 SELECTION RULE
										MANUAL UC= ACME UC=5761
5		03			0	051	1			5742/1749 1976 1978
										CAN 5742 BE DUE TO 1749 NO
										CAN 5742 BE DUE TO 1976 NO
										CAN 5742 BE DUE TO 1978 MAYBE
										TUC=1978 SELECTION RULE
										1978 LMP 1749 . YES
										MANUAL UC= ACME UC=1749
5		03			0	051	1			5184/585 5939*2500 4029
										CAN 5184 BE DUE TO 585 YES
										TUC=585 SELECTION RULE
										585 DS 5939 MAYBE
										5939 DSC 2500 2503 YES
										MANUAL UC= ACME UC=2503
5		03			0	051	1			585 5939*4029
										TUC=585 SELECTION RULE
										585 DS 5939 MAYBE
										5939 SMP 585 YES
										585 LMC 4029 4049 YES
										MANUAL UC= ACME UC=4049
5		03			0	051	1			4436/4379/4249*5762 7824
										INVALID CODE 4436
5		03			0	051	1			5199 4299/438
										CAN 5199 BE DUE TO 438 MAYBE
										CAN 4299 BE DUE TO 438 YES
										TUC=438 SELECTION RULE
										MANUAL UC= ACME UC=438

ACME931
VERSION SX05

NATIONAL CENTER FOR HEALTH STATISTICS
STATISTICAL SUMMARY FOR ACME CYCLE

RUNDATE 05/30/86

	NUMBER OF RECORDS		PERCENT		
TOTAL RECORDS	67149		100.00		
REJECTED RECORDS	167		0.25		
INVALID M/C DATA OR FORMAT		135		0.20	
REJECT 5		26		0.04	
REJECT 9		6		0.01	
OTHER REJECT CODES		0		0.00	
RECORDS THROUGH SYSTEM	66982		99.75	100.00	
RECORDS REJECTED DURING PROCESSING	605			0.90	
AMBIVALENT DECISION TABLE ENTRY		599			0.89
NO CR TABLE ADDRESS		1			0.00
CIRCULAR LINKAGE LOOP		1			0.00
INVALID UNDERLYING CAUSE		4			0.01
RECORDS FREE OF DATA AND SYSTEMS PROBLEMS	66377			99.10	100.00
ACME-MANUAL UNDERLYING CAUSE AGREE		0			0.00
ACME-MANUAL UNDERLYING CAUSE DISAGREE		0			0.00
NO UC CODED		66377			100.00
TOTAL FORMATTED RECORDS ON OUTPUT	66377				

NATIONAL CENTER FOR HEALTH STATISTICS
UNDERLYING CAUSE COMPARISON

RUNDATE 05/30/86

TABLE	TOTAL ENCOUNTERS	POSTIVE RELATIONSHIP	NEGATIVE RELATIONSHIP	AMBIVALENT RELATIONSHIP	PERCENT AMBIVALENCE OF TOTAL
CR	79363	69311	9734	318	0.00
DS	536	489	----	47	8.77
DSC	34	33	----	1	2.94
SENDC	14	1	----	13	92.86
SENMC	0	0	----	0	0.00
IDDC	2	1	----	1	50.00
T	81	81	----	----	----
LMP	8720	8640	----	80	0.92
LDP	281	281	----	0	0.00
LMC	841	778	----	63	7.49
LDC	161	146	----	15	9.32
SMP	840	763	----	77	9.17
SDC	23	19	----	4	17.39
SMC	48	45	----	3	6.25
CONVERSION	3082	3082	----	----	----

APPENDIX 12

PROPOSED CHANGE IN ICD-9 ACME DECISION TABLES

Date: _____

CAUSAL RELATIONSHIP

	Address	Subaddress	Causal Relationship
Present Entry	_____	_____	_____
Proposed Entry	_____	_____	_____

MODIFICATION TABLES

	Table	Address	Subaddress	Combination Code
Present Entry	_____	_____	_____	_____
Proposed Entry	_____	_____	_____	_____

		Full Text	ICD-9 Multiple Cause Codes
Certification Raising Need for Table Change:	I(a)	_____	_____
	(b)	_____	_____
	(c)	_____	_____
	(d)	_____	_____
	(e)	_____	_____
	II	_____	_____

Underlying Cause:

Accident, Suicide Undet., Etc.	Injury Infor.

Describe Reason for Proposed Change: _____

Recommended by: _____

APPENDIX 13

TRANSAX OUTPUT RECORD

Field Size	Positions	Item	Source
209	1-209	Same as ACME "Good" Record (Appendix 8)	ACME Output
1	210	Conversion Flag	TRANSAX
100	211-310	Record Axis (MC) Codes (Maximum of 20 codes of 5 positions each) Format of each code: 4 positions for ICD code 1 position for Nature of Injury flag Code 1 if Nature of Injury code Code 9 otherwise	Axis translation of entity axis multiple cause codes in 35-174 of ACME output

MORTALITY AXIS TRANSLATION SYSTEM
TRANSAX - 1988

SUMMARY TABLE - AXIS TRANSLATION PROGRAM

4115	TOTAL RECORDS READ
4115	TOTAL RECORDS THROUGH AXIS CONVERSION PHASE
315	TOTAL RECORDS WITH ONE OR MORE CONVERSIONS
192	TOTAL RECORDS WITH NO LINKAGES, ARTIFICIAL CODES CONVERTED
388	NUMBER OF ARTIFICAL CODES IN ENTITY-AXIS
0	NUMBER RECORDS ON WHICH PRIMARY NEOPLASM CODE COULD NOT BE ADDED
110	TOTAL RECORDS WITH NO CONVERSIONS, DUPLICATE CODES DELETED
3498	TOTAL RECORDS WITH NO ACTION REQUIRED
18	NUMBER NON-AMBIVALENT LINKAGES IN TABLE 1
142	NUMBER NON-AMBIVALENT LINKAGES IN TABLE 2
148	NUMBER NON-AMBIVALENT LINKAGES IN TABLE 4
5	NUMBER MAYBES ENCOUNTERED IN TABLE 1
80	NUMBER MAYBES ENCOUNTERED IN TABLE 2
10	NUMBER MAYBES ENCOUNTERED IN TABLE 4
5	NUMBER OF AMBIVALENT LINKAGES USED FROM TABLE 1
37	NUMBER OF AMBIVALENT LINKAGES USED FROM TABLE 2
5	NUMBER OF AMBIVALENT LINKAGES USED FROM TABLE 4

MORTALITY MEDICAL DATA COMPARISON

STATE NAME: HYPOTHETICAL
STATE CODE: 99
INPUT CERTIFICATE NO. SPAN: 4678 0
0 0 0
5435 0 0
0 0
INPUT CERTIFICATE NO. SPAN: 4678 5435 0 0 0 0 0 0

THE FOLLOWING RECORDS CONTAIN DIFFERENCES

NUMBER OF DIFFERENCES

MULT C. TD	NPD	REJ	PI	UC
1	1	0	0	0

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ	PI
NCHS :	99	0	004740					
STATE:	99	0	004740		492			

ALL CONDITIONS LISTED ON RECORD
NCHS : 0389/492*5188
STATE: 0389/492

NUMBER OF DIFFERENCES

MULT C. TD	NPD	REJ	PI	UC
1	1	0	0	0

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ	PI
NCHS :	99	0	004790					
STATE:	99	0	004790		7799			

ALL CONDITIONS LISTED ON RECORD
NCHS : 7799 7662
STATE: 7799

NUMBER OF DIFFERENCES

MULT C. TD	NPD	REJ	PI	UC
1	1	0	0	0

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ	PI
NCHS :	99	0	004900					
STATE:	99	0	004900		5990			

ALL CONDITIONS LISTED ON RECORD
NCHS : 4275/7855/5990*4140 2500 5742
STATE: 4275/7855/5990*4149 2500 5742

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ PI
NCHS :	99	0	004990				
STATE:	99	0	004990		4340		

ALL CONDITIONS LISTED ON RECORD
NCHS : 438/4409
STATE: 4340/4409

NUMBER OF DIFFERENCES

MULT C. TD	NPD	REJ	PI	UC
1	1	0	0	0

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ PI
NCHS :	99	0	005090				
STATE:	99	0	005090		410		

ALL CONDITIONS LISTED ON RECORD
NCHS : 1990
STATE: 410/4029*462

NUMBER OF DIFFERENCES

MULT C. TD	NPD	REJ	PI	UC
3	3	0	0	0

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ PI
NCHS :	99	0	005100				
STATE:	99	0	005100		8161		

ALL CONDITIONS LISTED ON RECORD
NCHS : (54/&8151
STATE: (54/8161

NUMBER OF DIFFERENCES

MULT C: TD	NPD	REJ	PI	UC.
1	1	0	0	0

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ PI
NCHS :	99	0	005170				
STATE:	99	0	005170		1539		

ALL CONDITIONS LISTED ON RECORD
NCHS : 4275/1539*4254 4140
STATE: 4275/1539*4254

NUMBER OF DIFFERENCES

MULT C. TD	NPD	REJ	PI	UC
1	1	0	0	0

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ PI
NCHS :	99	0	005280				
STATE:	99	0	005280		1909		

ALL CONDITIONS LISTED ON RECORD

NCHS : 1729 1984
STATE: 1909

NUMBER OF DIFFERENCES

MULT TD	C. NPD	REJ	PI	UC
2	2	0	0	0

	ST	RA	CERT_#	MANUAL UC	ACME UC	ACME REJ	INT REJ PI
NCHS :	99	0	005290				
STATE:	99	0	005290		5335		

ALL CONDITIONS LISTED ON RECORD

NCHS :)971*)974 &8789 &410
STATE:)971*8789 5335 410

NUMBER OF DIFFERENCES

MULT TD	C. NPD	REJ	PI	UC
2	1	0	0	0

MORTALITY MEDICAL DATA COMPARISON
SUMMARY STATISTICS
CODED BY HYPOTHETICAL

77 NUMBER OF NCHS RECORDS
756 NUMBER OF STATE RECORDS
76 NUMBER OF MATCHED RECORDS
0 NUMBER OF SAMPLE RECORDS OMITTED BY STATE
9 NUMBER RECORDS WITH ONE OR MORE DIFFERENCES
11.84 PERCENT MATCHED RECORDS WITH ONE OR MORE DIFFERENCES
0 NUMBER OF STATE RECORDS WITH ACME REJECT=2
0 NUMBER OF MATCHED SAMPLE RECORDS WITH ACME REJECT=2
0 NUMBER ACME REJECT RECORDS WITH ONE OR MORE DIFFERENCES
0.00 PERCENT ACME REJECT RECORDS WITH ONE OR MORE DIFFERENCES

	RATE	# CODES	# DIFFERENCES
MULTIPLE CAUSE - TOTAL DIFFERENCES (TD)	6.53	199	13
MULTIPLE CAUSE -NON POSITIONAL (PD)	6.03	199	12
PLACE OF INJURY	0.00	2	0
REJECT	0.00	0	0
UNDERLYING CAUSE	0.00	0	0
COMBINATION	6.47	201	13

COMBINATION REFERS TO SUM OF TOTAL MULT CAUSE CODES, REJECT CODES, & PLACE OF INJURY CODES

DIFFERENCE RATES FOR ACME REJECTS ONLY

MULTIPLE CAUSE - TOTAL DIFFERENCES	0.00	0	0
MULTIPLE CAUSE - NON POSITIONAL	0.00	0	0
PLACE OF INJURY	0.00	0	0
REJECT	0.00	0	0
UNDERLYING CAUSE	0.00	0	0
COMBINATION	0.00	0	0

ADJUDICATED ERROR RATES - STATE

	RATE	# CODES	# ERRORS
MULTIPLE CAUSE - TOTAL ERROR			
MULTIPLE CAUSE - POSITIONAL			
PLACE OF INJURY			
REJECT			
UNDERLYING CAUSE			
COMBINATION			

ADJUDICATED ERROR RATES - NCHS

	RATE	# CODES	# ERRORS
MULTIPLE CAUSE - TOTAL ERROR			
MULTIPLE CAUSE - POSITIONAL			
PLACE OF INJURY			
REJECT			
UNDERLYING CAUSE			

APPENDIX 17

SAMPLING RATES AND PROPORTION OF

RECORDS SAMPLETED BY ESTIMATED ANNUAL RECEIPTS

Expected Volume of Records	Sampling Rate	Percent Sample	Number of Sample Records	
			Minimum	Maximum
Less than 1,200	1 in 1	100.00	-	1,199
1,200- 2,999	1 in 2	50.00	600	1,500
3,000- 5,999	1 in 5	20.00	600	1,200
6,000- 11,999	1 in 10	10.00	600	1,200
12,000- 14,999	1 in 20	5.00	600	750
15,000- 29,999	1 in 25	4.00	600	1,200
30,000- 59,999	1 in 50	2.00	600	1,200
60,000- 74,999	1 in 100	1.00	600	750
75,000-199,999	1 in 125	0.80	600	960
120,000-149,999	1 in 200	0.50	600	750
150,000-299,999	1 in 250	0.40	600	1,200
300,000 +	1 in 500	0.20	600	-

APPENDIX 18

TOLERANCES FOR VSCP QUALITY CONTROL PROCEDURES:

MEDICAL ITEMS

Number of Sample Codes	Tolerance Level If Proportion Sampled is Less than 50%	
	Level 1	Level 2
350	.0695	.1043
300	.0707	.1061
275	.0722	.1083
250	.0736	.1104
225	.0750	.1125
200	.0765	.1147
175	.0779	.1169
150	.0794	.1191
140	.0803	.1205
130	.0814	.1221
120	.0827	.1241
110	.0842	.1263
100	.0859	.1289
90	.0878	.1317

1. Maximum allowable error rates (X) for accepting an error rate of .0625 with .95 probability, by proportion of records sampled, and specified number of sample codes.

2. The sampling plan is designed so that at the end of the year each State will send in at least 600 records which should contain at least 1,800 codes, and the probability of accepting a true error rate of .05 is 1.0 and the probability of accepting a true error of .10 is .005.

3. If the proportion sampled is 1 in 1 (i.e., the quality control sample is the entire population), there is no sampling error. Therefore, X = .0625 regardless of sample size.

APPENDIX 19

LISTING OF RARE CAUSES OF DEATH FOR 1985 MORTALITY DATA

ST OCC	CO OCC	R A	CERT #	SEX	AGE	ACME CAUSE	CAUSE CONDITIONS
01	050	0		1	065	0239	0389 5990 586/5920/0239
02	075	0		2	074	001	4275/0019
03	006	0		1	599	0200	5739/0200
04	020	0		1	086	0051	2639 2769/558/0051*175
05	014	0		1	048	1229	7991 5729/1229
06	026	0		2	060	1229	)973/&8789/&1229/1229
07	011	0		1	049	0840	3239/0840
08	079	0		1	025	071	071 3239 4229
09	125	0		1	085	0309	4289/0309/1991
10	057	0		1	049	1231	3489/1231
11	101	0		1	059	1231	486/7993/1231
12	162	0		1	060	1231	7991/1231
13	029	0		1	071	1220	)973/&8786 5729/&1220 5329*4140
14	017	0		2	084	0788	7855/2762/0788
15	052	0		2	067	1279	2762/1279

NOTE: Data are hypothetical--used for illustrative purposes only.

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