



**HEALTHCARE COST AND UTILIZATION PROJECT (HCUP) NATIONAL
INPATIENT SAMPLE: CHANGE IN STRUCTURE DUE TO ICD-10-
CM/PCS BEGINNING WITH 2016 DATA**

Recommended Citation: Barrett ML, Hensche MB. *Healthcare Cost and Utilization Project (HCUP) National Inpatient Sample: Change in Structure Due to ICD-10-CM/PCS Beginning with 2016 Data*. ONLINE. November 2020. U.S. Agency for Healthcare Research and Quality. Available: <http://www.hcup-us.ahrq.gov/db/nation/nis/nisdbdocumentation.jsp>

TABLE OF CONTENTS

Introduction	1
Revised File Structure of the National Inpatient Sample, Beginning with Data Year 2016	2
Resources for Using Administrative Data with ICD-10-CM/PCS Diagnosis and Procedure Codes ...	2
Appendix A: Complete List of Data Element Changes Beginning with the 2016 NIS	4

INTRODUCTION

This document provides an overview of how the Healthcare Cost and Utilization Project (HCUP) National Inpatient Sample (NIS) has changed in file structure (as compared with the 2015 NIS) beginning with data year 2016.

The NIS is a database of hospital inpatient stays derived from billing data submitted by hospitals to statewide data organizations across the U.S. These inpatient data include clinical and resource use information typically available from discharge abstracts. Researchers and policymakers use the NIS to make national estimates of health care utilization, access, charges, quality, and outcomes.

As a result of the introduction of ICD-10-CM/PCS¹ on October 1, 2015 (quarter 4 of 2015 and the start of fiscal year 2016), the United States transitioned from using ICD-9-CM to ICD-10-CM/PCS code sets for reporting clinical diagnoses and inpatient procedures. Beginning with quarter 4 of 2015 (2015 Q4), the names of diagnosis- and procedure-related data elements in the NIS Core File start with the prefix "I10_" to identify the coding scheme. The coding change in 2015 also is signaled by a change in the NIS file structure:

- The 2015 NIS included nine months data with ICD-9-CM coding and three months of data with ICD-10-CM/PCS coding because of the mid-year change in diagnosis and procedure coding. The 2015 NIS files had a very different structure than other years and were split into two parts based on the diagnosis and procedure coding system.
- Beginning with data year 2016, the NIS is an annual, calendar year file with diagnosis and procedure codes reported using only the ICD-10-CM/PCS coding system. Therefore, the file structure is similar to the file structure of the NIS in data year 2014 and prior years.

Beginning 2015 Q4, data elements derived from the AHRQ software tools based on ICD-10-CM/PCS diagnosis and/or procedure codes are *not available on the NIS* except for the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses, which is available beginning in data year 2018. Users interested in applying additional AHRQ software tools to the NIS that include ICD-10-CM/PCS-coded data may do so by downloading the respective tool(s) from the [HCUP Tools & Software](#) section of the HCUP User Support (HCUP-US) website. The *Tools Loading* tutorial is available to users interested in applying the AHRQ software tools at www.hcup-us.ahrq.gov/tech_assist/tutorials.jsp.

This document outlines the revised file structure of the NIS beginning with data year 2016 and provides resources to aid HCUP data users in using these files and data elements based on ICD-10-CM/PCS coding. Users in need of further details should consult the [NIS database documentation](#).

¹ ICD-9-CM: International Classification of Diseases, Ninth Revision, Clinical Modification;
ICD-10-CM/PCS: International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System

REVISED FILE STRUCTURE OF THE NATIONAL INPATIENT SAMPLE, BEGINNING WITH DATA YEAR 2016

- The NIS beginning with data year 2016 includes a full calendar year with diagnosis and procedure codes reported using only the ICD-10-CM/PCS coding system. Therefore, the file structure is similar to data year 2014 and prior years: **Discharge-level Files**
 - **Core File** is a single file containing commonly used data elements (e.g. age, expected primary payer, ICD-10-CM/PCS codes, total charges).
 - Beginning with data year 2017, separate reporting of external cause codes is discontinued (formerly HCUP data element I10_ECAUSEn). Instead, external cause codes have been added to the end of the ICD-10-CM diagnosis array (I10_DXn). The size of the diagnosis array was increased from 25 to 40 codes. Also, the size of the ICD-10-PCS array (I10_PRN) was increased from 15 to 25 codes.
 - **Severity File** is a single file containing additional data elements to aid in identifying the severity of the condition for a specific discharge.
 - **Diagnosis and Procedure Groups File** is a single file containing additional information on the ICD-10-CM diagnoses and ICD-10-PCS procedures, which is generally derived from the AHRQ software tools.
 - For data years 2016-2017, this file was not available in the NIS.
 - Beginning data year 2018, this file is available in the NIS and includes data elements derived from the CCSR for ICD-10-CM diagnoses.
- **Hospital File** is a single file containing information on hospital characteristics.

A complete list of data elements changes in the NIS beginning with data year 2016 is available in Appendix A.

RESOURCES FOR USING ADMINISTRATIVE DATA WITH ICD-10-CM/PCS DIAGNOSIS AND PROCEDURE CODES

The HCUP-US website has a section on [ICD-10-CM/PCS Resources](#) that summarizes key issues for researchers using HCUP and other administrative databases that include ICD-10-CM/PCS coding.

If you are unfamiliar with ICD-10-CM/PCS coding, please refer to the following two documents available on the web page:

- [A brief introduction to the ICD-10-CM/PCS coding system.](#)
- HCUP Methods Series Report on the [Impact of ICD-10-CM/PCS on Research Using Administrative Databases.](#)

If you are considering using the NIS to examine clinical conditions that will be defined using both ICD-9-CM and ICD-10-CM/PCS coding, please refer to the following important resource:

- [HCUP recommendations for reporting trends using ICD-9-CM and ICD-10-CM/PCS data.](#)

These recommendations apply to calendar year 2015 data (which includes both ICD-9-CM and ICD-10-CM/PCS codes), as well as reporting trends that span the October 1, 2015 transition date (before and after the introduction of ICD10-CM/PCS).

The HCUP [ICD-10-CM/PCS Resources](#) web page also includes the following short reports with new documents added periodically:

- Examination of trends between ICD-9-CM and ICD-10-CM/PCS for key data elements such as number of diagnoses/procedures and Clinical Classification Software (ICD-9-CM and beta version ICD-10-CM/PCS) categories.
- Examination of coding for opioid use under ICD-9-CM and ICD-10-CM/PCS.
- Other Federal and State web resources with information on ICD-10-CM/PCS.

Users interested in applying additional AHRQ software tools to the data years of NIS that include ICD-10-CM/PCS-coded data may do so by downloading the respective tool(s) from the [Tools & Software](#) section of the HCUP-US website. It is advisable to consult this section regularly to ensure the most recent version of a tool is being used. Additionally, users may wish to review the [HCUP Tools Loading Tutorial](#), which provides instructions on how to unzip (decompress) the AHRQ software tools for ICD-10-CM/PCS, save it on the computer, and load the tool into a standard statistical software package for application to HCUP or other administrative databases. Users will also learn how to verify that the tool has loaded correctly.

APPENDIX A: COMPLETE LIST OF DATA ELEMENT CHANGES BEGINNING WITH THE 2016 NIS

Appendix A includes a complete list of data element changes beginning with the 2016 NIS. Table A.1 includes a list of discontinued data elements. Note that data elements based on ICD-9-CM diagnosis and procedure codes were discontinued beginning 2015 Q4. Table A.2 includes a list of newly added data elements.

Table A.1 Discontinued Data Elements

Data Element Name	Description	NIS File	Year Discontinued
DXVER	Diagnosis codes ICD version indicator	Core	2018
I10_ECausen ^a	External cause of morbidity code n	Core	2017
I10_NECause ^a	Number of ICD-10-CM external cause of morbidity codes on this record	Core	2017
PRVER	Procedure codes ICD version indicator	Core	2018

^a Beginning with the 2017 NIS, separate reporting of external cause codes is discontinued (formerly HCUP data element I10_ECAUSEn). External cause codes have been added to the end of the ICD-10-CM diagnosis array (I10_DXn).

Table A.2 Newly Added Data Elements

Data Element Name	Description	NIS File	Year Added
DXCCSR_aaannn ^b	Indication that at least one ICD-10-CM diagnosis on the record is included in CCSR aaannn	Diagnosis and Procedure Groups	2018

Data Element Name	Description	NIS File	Year Added
DXCCSR_DEFAULT_DX1	Default Clinical Classifications Software Refined (CCSR) for principal diagnosis	Diagnosis and Procedure Groups	2018
DXCCSR_VERSION	Version of CCSR for ICD-10-CM diagnoses	Diagnosis and Procedure Groups	2018

^b Where aaa denotes the body system and nnn denotes the CCSR number within the body system.