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

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INTRODUCTION

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

The NIS is a database of all-payer hospital inpatient stays derived from billing data submitted by hospitals to statewide data organizations across the United States. 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 healthcare utilization, cost, quality, and outcomes. Beginning in data year 2016, the NIS includes diagnosis and procedure codes reported using only the International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System (ICD-10-CM/PCS). The names of diagnosis- and procedure-related data elements under the ICD-10-CM/PCS coding system begin with the prefix "I10_" to identify the coding scheme. For information on changes to the NIS in data year 2015, refer to the document *2015 Healthcare Cost and Utilization Project (HCUP) National Inpatient Sample: Change in Structure and Data Elements Caused by Transition to ICD-10-CM/PCS.*

REVISED FILE STRUCTURE OF THE NIS BEGINNING WITH DATA YEAR 2016

Similar to the file structure of the NIS in data year 2014 and prior years, the NIS beginning with data year 2016 is an annual, calendar year file. There are three discharge-level files and one hospital-level file:

Discharge-level files

- **Core File** is a single file containing commonly used data elements (e.g., age, expected primary payer, discharge status, ICD-10-CM/PCS codes, total charges).
    - This file is available in all years of the NIS.
    - Linkage between the discharge-level files
        - Prior to the 2012 NIS, the HCUP unique record identifier (KEY) provided the linkage between the discharge-level files.
        - Beginning with the 2012 NIS, the unique NIS record number (KEY_NIS) provides the linkage between the discharge-level files.
- **Severity File** is a single file containing additional data elements to aid in identifying the severity of the condition for a specific discharge.
    - This file is available beginning with the 2002 NIS.
- **Diagnosis and Procedure Groups File** is a single file containing additional information on the ICD-10-CM diagnoses and ICD-10-PCS procedures that is created by the Agency for Healthcare Research and Quality (AHRQ) software tools.
    - This file is available beginning with the 2005 NIS.
    - For data years 2016–2017, this file was not available in the NIS. Data elements derived from the ICD-10-CM/PCS AHRQ software tools were not included in the NIS because they were still in development and testing.

- Beginning with data year 2018, this file is available in the NIS and includes data elements derived from the Clinical Classifications Software Refined (CCSR) for ICD-10-CM diagnoses.
- Beginning with data year 2019, data elements derived from the Elixhauser Comorbidity Software Refined for ICD-10-CM, the CCSR for ICD-10-PCS procedures, and Procedure Classes Refined for ICD-10-CM are also available in this file.

Hospital-level files

- **Hospital File** is a single file containing information on hospital characteristics.
  - This file is available in all years of the NIS.
  - Linkage between the Inpatient Core File and the Hospital File
    - Prior to the 2012 NIS, the HCUP hospital identifier (HOSPID) provided the linkage between the NIS Inpatient Core File and the Hospital File.
    - Beginning with the 2012 NIS, the NIS hospital number (HOSP_NIS) provides the linkage between the NIS Inpatient Core File and the Hospital File. The HOSP_NIS values are reassigned each year, so they cannot be used to link hospitals across years.

Users interested in applying AHRQ software tools to the NIS for data years including ICD-10-CM/PCS-coded data to produce data elements currently unavailable in the database files may do so by downloading the respective tool(s) from the Research Tools section of the HCUP User Support (HCUP-US) website. Additionally, users may wish to review the HCUP Software Tools Tutorial, which provides instructions on how to apply the AHRQ software tools to HCUP or other administrative databases.

A complete list of data element 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 an ICD-10-CM/PCS Resources section 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:

- Brief Introduction to ICD-10-CM/PCS Codes
- HCUP Methods Series Report #2016-02: 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 International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and ICD-10-CM/PCS coding, please refer to the following important resource:

- Healthcare Cost and Utilization Project (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 to reporting trends that span the October 1, 2015, transition date (before and after the introduction of ICD-10-CM/PCS).

The HCUP ICD-10-CM/PCS Resources web page also includes short reports on specific topics related to the ICD-10-CM/PCS transition.

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

This appendix includes a complete list of data element changes beginning with the 2016 National Inpatient Sample (NIS). Table A1 lists discontinued data elements, and Table A2 lists newly added data elements.

Table A1. 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

Abbreviations: HCUP, Healthcare Cost and Utilization Project; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification; NIS, National Inpatient Sample.

[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 A2. Newly Added Data Elements

Data Element Name	Description	NIS File	Year Added
CMR_aaa[b]	Comorbidity measures (aaa) identified by the AHRQ Elixhauser Comorbidity Software Refined for ICD-10-CM diagnosis codes	Diagnosis and Procedure Groups	2019
CMR_VERSION	Version of the Elixhauser Comorbidity Measure Refined for ICD-10-CM	Diagnosis and Procedure Groups	2019
DXCCSR_aaannn[c]	Indication that at least one ICD-10-CM diagnosis on the record is included in CCSR aaannn	Diagnosis and Procedure Groups	2018
DXCCSR_DEFAULT_DX1	Default CCSR for principal diagnosis	Diagnosis and Procedure Groups	2018
DXCCSR_VERSION	Version of CCSR for ICD-10-CM diagnoses	Diagnosis and Procedure Groups	2018
I10_BIRTH	ICD-10-CM birth indicator	Core	2019
I10_DELIVERY	ICD-10-CM delivery indicator	Core	2019
I10_INJURY	Injury ICD-10-CM diagnosis reported on record	Core	2019
I10_MULTINJURY	Multiple ICD-10-CM injuries reported on record	Core	2019
I10_SERVICELINE	ICD-10-CM/PCS hospital service line indicator	Core	2019
PCLASSn[d]	Procedure Classes Refined for ICD-10-PCS procedures	Diagnosis and Procedure Groups	2019
PCLASS_ORPROC	ICD-10-PCS major operating room procedure indicator	Core	2019
PCLASS_VERSION	Version of the Procedure Classes Refined for ICD-10-PCS procedures	Diagnosis and Procedure Groups	2019

Data Element Name	Description	NIS File	Year Added
PRCCSR_aaannn[e]	Indication that at least one ICD-10-PCS procedure code on the record is included in CCSR aaannn	Diagnosis and Procedure Groups	2019
PRCCSR_VERSION	Version of the CCSR for ICD-10-PCS procedures	Diagnosis and Procedure Groups	2019

Abbreviations: AHRQ, Agency for Healthcare Research and Quality; CCSR, Clinical Classifications Software Refined; 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; NIS, National Inpatient Sample.

[b] Where aaa denotes the specific comorbidity measure.

[c] Where aaa denotes the body system and nnn denotes the CCSR number within the body system.

[d] PCLASSn was also available on the NIS through quarter 3 of data year 2015 and was specific to the coding of ICD-9-CM procedures.

[e] Where aaa denotes the clinical domain and nnn denotes the CCSR number within the clinical domain.