
United States Renal Data System Annual Data Report
What's New in 2017

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Changes to 2017 SAFs

- A summary of the file structure, variable, format, label, and methodology changes to the 2017 USRDS Standard Analysis Files (SAFs) are listed below.
- A 64-bit version of the SAS formats file is included as "formats64.sas7bcat" with the CORE SAFs (use this cumulative/backward-compatible formats file for all available USRDS SAFs if running a SAS v9.2 or higher 64-bit session.)
- 2017 SAFs were created using SAS 9.4 32bit

NOTABLE CHANGES IN OUR DATA THIS YEAR

- In response to the introduction of ICD-10 diagnostic coding in October 2015, our claims data now contain ICD-9 and ICD-10 codes, as appropriate to the time frame of service.
- We have revised the structure of the Transplant SAF (2017 TX SAF). Transplant candidate, recipient, donor, and histocompatibility information are now separately stored in eight different datasets. Transplant follow-up and immunosuppressive information structure remain the same as in previous years. Additional detail regarding relationship and linkage changes is included later in this section.

File Structure Changes

Census	CENSUS files with six race groups were added: CPUS6R (Census data for US), CPST6R (Census data by state). The six race groups are White, Black/African American, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, and Other or Multiracial.
RXHIST and RXHIST60	We concatenated the records having the same patient ID (<i>USRDS_ID</i>), same provider (<i>PROVUSRD</i>) and same modality (<i>RXDETAIL</i>) were combined in RXHIST.
Transition of Care in Chronic Kidney Disease (TCKD) special study datasets	TCKD Special Study datasets were added. Details about the TCKD Special Study can be found in <i>Transition of Care in Chronic Kidney Disease in Section 1 ESRD data and The USRDS ESRD database</i> .
Institutional claims	In addition to all 2015 institutional claims, the first quarter of 2016 inpatient claims files IP_CLM and IP_DXP were also added. In 2017 USRDS Annual Data Report, data from the first quarter of 2016 was used in the Hospitalization chapter to ensure complete 2015 claims based on CLM_FROM.
CKD_HOSP_2010ON	The file name CKD_10_TO_14_HOSP_CLM was changed to CKD_HOSP_2010ON.

File Structure Changes (continued)

CKD PS claim files

This year both PS/DME claim level and line level variables and PS/DME records have been separated.

- CKD_PS_CLM_2015
- CKD_PS_LN_2015
- CKD_DME_CLM_2015
- CKD_DME_LN_2015

CROWNWeb Clinical

In previous years, a full year of data was added with each update. This year the updated records include the January 2016 to May 2016 period only.

Transplant SAF

This year we have changed the structure of the Transplant SAF.

Figure 2 illustrates the structure of USRDS 2016 TX SAF. Transplant candidate, recipient, donor, and histocompatibility information were contained in TXUNOS_KI_PRE_JUL04/TXUNOS_KI_POST_JUL04 for kidney-alone transplants, and in TXUNOS_KP for kidney-pancreas transplants. Transplant follow-up information was found in TXFUUNOS_KI for kidney-alone transplants and TXFUUNOS_KP for kidney-pancreas transplants. Immunosuppressive information at the time of transplant was found in TXIRUNOS and immunosuppressive information at follow-up in TXIFUNOS.

Figure 3 shows the **revised structure** of the USRDS 2017 TX SAF. Transplant candidate, recipient, donor, and histocompatibility information are now separately stored in eight different datasets. Transplant follow-up and immunosuppressive information structure remain the same as in previous years.

In the 2017 TX SAF, TXUNOS_KI_PRE_JUL04, TXUNOS_KI_POST_JUL04, and TXUNOS_KP are divided into eight different transplant datasets—TXUNOS_TRR_KI, TXUNOS_TCR_KI, TXUNOS_TRR_KP, TXUNOS_TCR_KP, TXUNOS_CDR, TXUNOS_LDR, TXUNOS_DHS, and TXUNOS_RHS.

Figure 2. USRDS Transplant Standard Analysis File, 2016

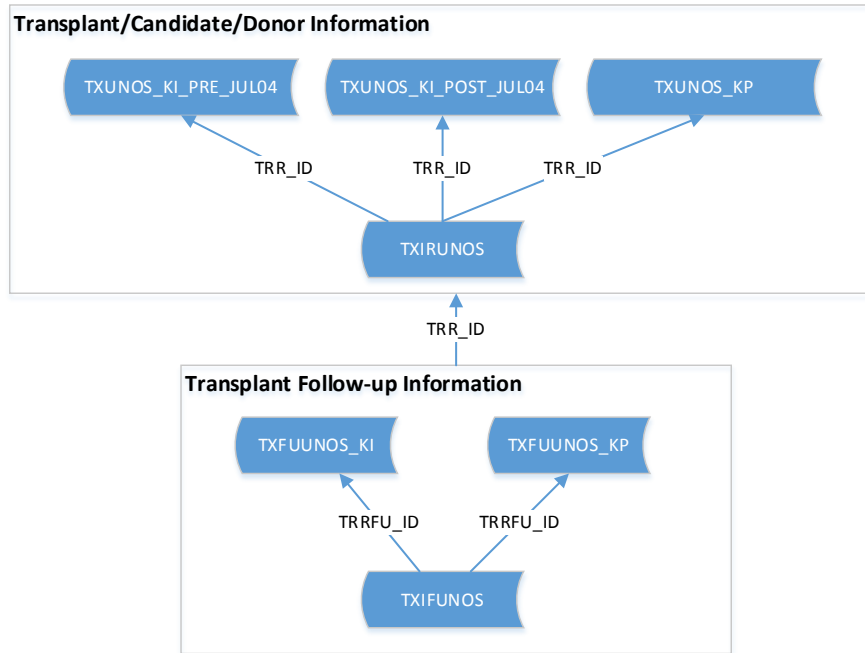


Figure 3. USRDS Transplant Standard Analysis File, Revised 2017

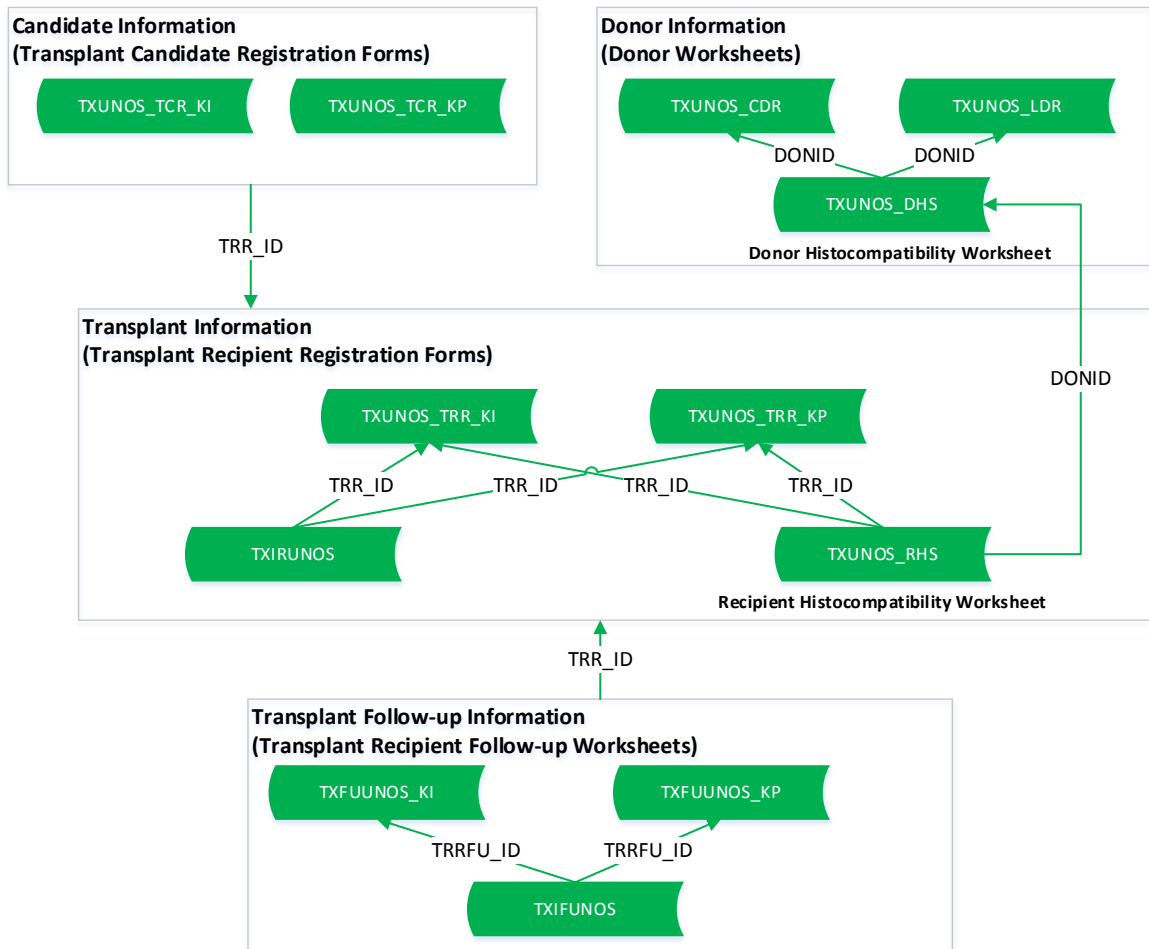


Figure 4 and Table 2 show the relationships and linkages between the previous 2016 TXUNOS_KI_PRE_JUL04/TXUNOS_KI_POST_JUL04 and six of 2017 USRDS TX SAFs.

Figure 4. Comparison of USRDS Transplant Standard Analysis File Structure, Pre and Post 2017 Revision



Table 2. Relationships and linkages between the TX and TXUNOS SAFs, Kidney-Along, 2016-2017

2016 USRDS TX SAF (previous)	2017 USRDS TX SAF (current)	OPTN form	Variable label prefix	Key ID
TXUNOS_KI_PRE_JUL04 TXUNOS_KI_POST_JUL04	TXUNOS_TRR_KI	Kidney Transplant Registration Worksheet	KIR	USRDS_ID TRR_ID DONID
	TXUNOS_TCR_KI	Kidney Transplant Candidate Registration Worksheet	TCR_KI	TRR_ID
	TXUNOS_CDR	Deceased Donor Registration Worksheet	CDR	DONID
	TXUNOS_LDR	Living Donor Registration Worksheet	LDR	DONID
	TXUNOS_DHS	Donor Histocompatibility Worksheet	DHS	DONID
	TXUNOS_RHS	Recipient Histocompatibility Worksheet	RHS	USRDS_ID TRR_ID DONID
	TXUNOS_TRR_KI	Donor Histocompatibility Worksheet vs Recipient Histocompatibility Worksheet	USRDS	USRDS_ID TRR_ID DONID

Table 3. Relationships and linkages between the TX and TXUNOS SAFs, Kidney-Pancreas, 2016-2017

2016 USRDS dataset (previous)	2017 USRDS dataset (current)	OPTN form	Variable label prefix	Key ID
TXUNOS_KP	TXUNOS_TRR_KP	Kidney-Pancreas Transplant Registration Worksheet	KPR	USRDS_ID TRR_ID DONID
	TXUNOS_TCR_KP	Kidney-Pancreas Transplant Candidate Registration Worksheet	TCR_KP	TRR_ID
	TXUNOS_CDR	Deceased Donor Registration Worksheet	CDR	DONID
	TXUNOS_LDR	Living Donor Registration Worksheet	LDR	DONID
	TXUNOS_DHS	Donor Histocompatibility Worksheet	DHS	DONID
	TXUNOS_RHS	Recipient Histocompatibility Worksheet	RHS	USRDS_ID TRR_ID DONID
	TXUNOS_TRR_KP	Donor Histocompatibility Worksheet vs Recipient Histocompatibility Worksheet	USRDS	USRDS_ID TRR_ID DONID

Variable Changes

The following additions, deletions, and modifications were made to the variables in these 2017 files:

PATIENTS SAF	<p>The race group categories in previous SAFs were:</p> <ul style="list-style-type: none"> White Black/African American American Indian or Alaska Native Asian Other or Multiracial Unknown <p>The descriptors of race groups have been updated to be consistent with the race categories reported in the U.S. Census. This year, a new category of "Native Hawaiian or Pacific Islander" was created as separate from "Asian"; the resulting 2017 race group categories are:</p> <ul style="list-style-type: none"> White Black/African American American Indian or Alaska Native Asian Native Hawaiian or Pacific Islander Other or Multiracial Unknown <p>We added the variable <i>CDTYPE</i> to specify whether ICD-9 or ICD-10 coding was used to indicate the Primary Cause of Renal Failure (<i>PDIS</i>).</p>
Medical Evidence Form data (MEDEVID)	<p>We added the variable <i>CDTYPE</i> to indicate whether ICD-9 or ICD-10 coding was used for <i>PDIS</i>.</p> <p>Only one set of <i>COMO*</i> and <i>MEDCOV*</i> variables are now used. In the past, different CMS Medical Evidence 2728 Forms contained these redundant variable names for the same comorbidity data and medical insurance coverage—<i>COMO*</i> and <i>MEDCOV*</i>. Our practice had been to retain both variables; in 2017, we streamlined to use one set of variable names, choosing the most representative (see Table 4).</p> <p>We removed the historical Transplant SAF variables from the 2017 TX SAF.</p>

Table 4. Medical Evidence Form 2728 data comorbidity and medical coverage variable names in 2016 and prior SAFs versus 2017 SAF

Variable names in 2016 and earlier SAFs	Variable names in 2017 SAF
<i>MEDCOV_MEDICAID and MDCD</i>	<i>MEDCOV_MDCD</i>
<i>MEDCOV_MEDDVA and DVA</i>	<i>MEDCOV_DVA</i>
<i>MEDCOV_MEDICARE and MDCR</i>	<i>MEDCOV_MDCR</i>
<i>MEDCOV_GROUP and EMPGRP</i>	<i>MEDCOV_GROUP</i>
<i>MEDCOV_OTHER and OTHCOV</i>	<i>MEDCOV_OTHER</i>
<i>MEDCOV_NONE and NOCOV</i>	<i>MEDCOV_NONE</i>
<i>IHD</i>	<i>COMO_IHD</i>
<i>MI</i>	<i>COMO_MI</i>
<i>CARARR</i>	<i>COMO_CARARR</i>
<i>DYSRHYT</i>	<i>COMO_DYSRHYT</i>
<i>PERICAR</i>	<i>COMO_PERICAR</i>
<i>DIABPRIM</i>	<i>COMO_DIABPRIM</i>
<i>HIV</i>	<i>COMO_HIV</i>
<i>AIDS</i>	<i>COMO_AIDS</i>
<i>COMO_CHF and CARFAIL</i>	<i>COMO_CHF</i>
<i>COMO_CVATIA and CVA</i>	<i>COMO_CVATIA</i>
<i>COMO_PVD and PVASC</i>	<i>COMO_PVD</i>
<i>COMO_HTN and HYPER</i>	<i>COMO_HTN</i>
<i>COMO_DM_INS and DIABINS</i>	<i>COMO_DM_INS</i>
<i>COMO_COPD and PULMON</i>	<i>COMO_COPD</i>
<i>COMO_TOBAC and SMOKE</i>	<i>COMO_TOBAC</i>
<i>COMO_CANC and CANCER</i>	<i>COMO_CANC</i>
<i>COMO_ALCHO and ALCOH</i>	<i>COMO_ALCOH</i>
<i>COMO_DRUG and DRUG</i>	<i>COMO_DRUG</i>
<i>COMO_INAMB and NOAMBUL</i>	<i>COMO_INAMB</i>
<i>COMO_INTRANS and NOTRANS</i>	<i>COMO_INTRANS</i>

Variable Changes (continued)

The following additions, deletions, and modifications were made to the variables in these 2017 files:

Core Transplant SAF	<i>DRACE</i> : Pacific Islander was separated from Native American; the original <i>DRACE=2000</i> (Hispanic/Latino) was grouped with "Unknown" in 2016 and is grouped with "White" in 2017.
Transplant SAF	The 2017 TX SAFs includes all variables contained in the most current OPTN forms. Historical variables have been dropped from 2017 TX SAF. The following variables have changed in type: Changed to numeric variables: <i>BRAIN_DTH_TIME, CONSENT_TIME, DDCLMPTM, DYR_ENTRY_US, REOP_BLEED_KI, REOP_BOWEL_KI, REOP_HERNIA_KI, REOP_OTH_KI, REOP_VASC_KI</i> Changed to character variables: <i>DA1R, DA2R, DB1R, DB2R, RA1, RA2, RB1, RB2, RDR1, RDR2</i>
HOSPITALIZATION SAF	We added <i>HSDIAG_CDTYPE1 – HSDIAG_CDTYPE26</i> to indicate use of ICD-9 or ICD-10 coding for <i>HSDIAG1 – HSDIAG26</i> . We added <i>HSSURG_CDTYPE1 – HSSURG_CDTYPE26</i> to indicate use of ICD-9 or ICD-10 coding for <i>HSSURG1 – HSSURG26</i> .
Medicare claims	We added the variable <i>IRONSADMIN</i> —the count of <i>HCPCS</i> in J1755 and J1756—to Medicare Claims Clinical. We added the variable <i>CDTYPE</i> to indicate ICD-9 or ICD-10 as the source of <i>CODE</i> in Medicare claims. We added the variable <i>TYPE_ADM</i> —inpatient admission type claim code—to <i>IP_CLM_2015</i> .
CKD_CO_MORBID_00 – CKD_CO_MORBID_15	We added the variable <i>CODEVER</i> to indicate ICD-9 or ICD-10 as the source of <i>CODE</i>

Format and Label Changes

MODIFIED FORMATS

\$RACEFMT values were changed to:

- | | |
|----------|-------------------------------------|
| 1 | White |
| 2 | Black/African American |
| 3 | American Indian or Alaska Native |
| 4 | Asian |
| 5 | Native Hawaiian or Pacific Islander |
| 6 | Other or Multiracial |
| 9 | Unknown |

This format is attached to RACE in PATIENTS file, DRACE and RACE in TX file, RACE in WAITLIST file

\$MERACE values were changed to:

- | | |
|-----------|--------------------------------|
| 1 | White |
| 11 | MidEast |
| 2 | Black |
| 3 | American Indian/Alaskan Native |
| 4 | Asian |
| 41 | Indian SubCo |
| 5 | Pacific Islander |
| 6 | Other/Multi-racial |
| 9 | Unknown |

\$MEETH values were changed to:

- | | |
|----------|------------------------|
| 1 | Hispanic-Mexican |
| 2 | Hispanic Other |
| 3 | Non-Hispanic |
| 5 | Hispanic Non-Specified |
| 9 | Unknown |

VARIABLES WITH FORMAT CHANGES

In the 2017 **Transplant SAF**, the following variables were assigned new a format:

ABDOMINAL_AORTA_CANNUL_DT, AGONAL_BEGIN_DT, BRAIN_DTH_TIME, CONSENT_TIME, DCD_RECOV_DTDLU, DCD_RECOV_DTEKI, DCD_RECOV_DTHR, DCD_RECOV_DTIN, DCD_RECOV_DTINS1, DCD_RECOV_DTINS2, DCD_RECOV_DTLI, DCD_RECOV_DTLIS1, DCD_RECOV_DTLIS2, DCD_RECOV_DTLKI, DCD_RECOV_DTLUL, DCD_RECOV_DTLUR, DCD_RECOV_DTPA, DCD_RECOV_DTPAS1, DCD_RECOV_DTPAS2, DCD_RECOV_DTRKI, PORTAL_VEIN_CANNUL_DT, PULM_ART_CANNUL_DT, THORACIC_AORTA_CANNUL_DT, WITHDRAWL_DT were assigned DATETIME22.

BMTX, CONSENT_ATTORNEY, CONSENT_DON_CARD, CONSENT_DON_REGIS, CONSENT_DRIVE_LIC, HRTX, INTX, KITX, LITX, LUTX, PATX, PITX were assigned \$T_F.

DCD_PROGRESSED_BRAIN_DEATH was assigned \$YNUNK.

DDCLMPTM was assigned TIME.

LT_KI_GLOMERUL and *RT_KI_GLOMERUL* were assigned KI_GLUMR.

DDOD, INSULIN_RES_DT, METH_CLS2_TYP_DT, UNOSGF_PA_DT were assigned MMDDYY10.

MODIFIED LABELS

We corrected spelling errors in some variable labels, and other labels were changed to more accurately describe the variables.

The labels for Medical Evidence Form 2728 variables include question numbers from a different version of the Medical Evidence Forms. The labels include the information of form version and corresponding question number.

We have made label changes in TX SAF to indicate the section the variable belongs to in the OPTN form. Variable labels with prefix "KRF" in previous TXFUUNOS_KP SAF, were changed to "KPF". This was because KP transplant is not the only file containing pediatric-only variables; it is not necessary to distinguish it in the KP file. Instead, for all pediatric-only variables, we appended "(Pediatric Only)" to the end of their labels.

NEW FORMATS

The formats \$TYPEADM, \$YNUAFMT, \$MARSKPSC, \$RACEKPSC, INCNCRTY, EXCNCRTY, SKCNCRTY, BIOPTY, IF, VASCCHG, PUMPTY were added to the 2017 SAF format catalog; details are included in the *What's New in 2017* text file included with data requests.

\$TYPEADM

- 1 Emergency
- 2 Urgent
- 3 Elective
- 4 Newborn
- 5 Trauma Center
- 6 Reserve
- 7 Reserve
- 8 Reserve
- 9 Unknown

\$YNUAFMT

- A Not Applicable
- N No
- U Unknown
- Y Yes

\$MARSKPSC

- 01 Single
- 02 Married
- 03 Legally Separated
- 04 Divorced
- 05 Widowed
- 06 Separated
- 07 Common Law
- 08 Registered Domestic Partner
- 09 Unreported
- 10 Other
- 11 Unknown

NEW FORMATS (CONTINUED)**\$RACEKPC**

- 1 White
- 2 Black
- 4 Native American/Alaskan
- 5 Asian
- 6 Pacific Islander
- 7 Multiple
- 8 Other
- 9 Unknown

INCNCRTY

- 1 Astrocytoma
- 2 Medulloblastoma
- 3 Glioblastoma Multiforme
- 4 Neuroblastoma
- 5 Meningioma
- 6 Malignant Meningioma
- 7 Benign Angioblastoma
- 8 Unknown
- 99 Other Specify

EXCNCRTY

- 1 Kidney
- 2 Breast
- 3 Thyroid
- 4 Tongue/Throat/Larynx
- 5 Lung
- 6 Leukemia/Lymphoma
- 7 Liver
- 8 Unknown
- 99 Other specify

SKCNCRTY

- 1 Squamous Cell
- 2 Basal Cell
- 3 Melanoma
- 4 Unknown
- 999 Other Specify

BIOPTY

- 1 Needle
- 2 Wedge
- 999 Other Specify

IF

- 1 Absent
- 2 Minimal
- 3 Mild
- 4 Mild-moderate
- 5 Severe
- 6 Unknown

VASCCHG

- 1 Absent
- 2 Minimal
- 3 Mild
- 4 Mild-moderate
- 5 Severe
- 6 Unknown

PUMPTY

- 0 ORS
- 1 Waters
- 2 Other Specify

Methodology Changes

RXHIST and RXHIST60

When claims are included in Treatment History files RXHIST and RXHIST60, claims that had zero dialysis sessions, and occurred in hospitals, and had a period length ≤ 7 were removed.

Medical Evidence Form data (MEDEVID)

We improved the FORMVERSION variable. In previous years, the Coordinating Center determined which Medical Evidence Form version was used for a given patient via an algorithm based on important dates of service. We now use the FORMVERSION provided by CMS as this is reliable for most records. If that is missing, we then calculate the variable value.

OPTN

New versions of the OPTN forms have been added to Appendix D.