



CALIFORNIA CANCER REPORTING SYSTEM STANDARDS

VOLUME II

STANDARDS FOR AUTOMATED REPORTING

Record Layout Version 23


May 2023

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PART I INTRODUCTION

The reporting of cancer is mandatory under provisions of California's Health and Safety Code. Hospitals and other reporting facilities are required to report cancer information to the California Cancer Registry using computer reporting systems that meet State standards. This manual, *California Cancer Reporting System Standards Volume II - Standards for Automated Reporting* is intended for hospitals and other reporting facilities or vendors wishing to update their own automated reporting systems or create new reporting systems that comply with State requirements.

The intended audience for this document is system analysts and software developers. It describes the format in which collected data must be reported.

Detailed instructions for collecting and coding data can be found in *Cancer Reporting in California: California Cancer Reporting System Standards, Volume I: Abstracting and Coding Procedures for Hospitals*.

Documentation for data items and their allowable values from the central and regional registry perspectives can be found in *Cancer Reporting in California: Data Standards for Regional Registries and California Cancer Registry, California Cancer Reporting System Standards, Volume III, but documentation for computer edits is now contained only within the CCR's latest edits metafile*.

Section I.1 Summary of Changes

Changes are identified with **red font color**.

Corrections to the changes are identified by **blue font color**.

On CCRCAL.ORG, this volume and its related appendices file will be listed in the Volume II – **2023** section of the CCR's Registrar Resources and Reporting web page (<https://www.ccrca.org/submit-data/cancer-registrars-hospitals-and-facilities/reporting-by-cancer-registrars/>).

To comply with the national **2023** data changes, the CCR is requiring facilities to submit New Case Abstracts and Modified Records in NAACCR XML version **23.0** format. **2023** and later diagnoses must be submitted in this format, but once the facility software has been updated for **2023**, **new cases for all diagnosis years must be submitted this way using coding procedure 37. Coding procedure must be generated upon original new case completion, and it should not be changed when later updates occur, so subsequent modified records transmitted should continue to include that original new case coding procedure.** Instructions for formatting these NAACCR XML data files are provided using a combination of the latest NAACCR XML Data Standard document and further instructions specific to California noted in section II.5. Shared follow-up and deletion records will continue to be transmitted in flat files. The record layout for appendix B (shared follow-up) has been given a new record version **(R) because of the retirement of Date of Birth Flag, Date of Diagnosis Flag, Date of Last Contact Flag, and Date of Last Cancer (tumor) Status Flag along with corresponding changes to start and end positions.** The record layout for appendix C (deletions) has been given a new record version **(K) because of the retirement of Date of Birth**

Flag, Date of Diagnosis Flag, and Date of 1st Contact Flag, along with corresponding changes to start and end positions. ~~(Q) because of the new length of 12 for DC State File Number, along with corresponding changes to start and end positions.~~

Appendix A – New Items

Section: Follow-up/Recurrence/Death

- No patient contact flag (NAACCR ID 1854)
- Reporting facility restriction flag (NAACCR ID 1856)

Section: Hospital-Specific

- RX Hosp--Surg Prim Site 2023 (NAACCR ID 671)

Section: Special Use

- Date/Time Case Last Changed (NAACCR ID 70073)
- Date/Time New Case First Exported (NAACCR ID 70072)
- Date/Time Modified Record Last Exported (NAACCR ID 70074)
- Surg Prim Proc 2023 (1) (NAACCR ID 70069)
- Surg Prim Proc 2023 (2) (NAACCR ID 70070)
- Surg Prim Proc 2023 (3) (NAACCR ID 70071)

Section: Stage/Prognostic Factors

- Histologic Subtype (NAACCR ID 3960)
- Clinical Margin Width (NAACCR ID 3961)

Section: Treatment-1st Course

- RX Summ--Surg Prim Site 2023 (NAACCR ID 1291)

Appendix A – Changed Items

Section: Hospital-Specific

- “RX Hosp--Surg Prim Site **03-2022**” (NAACCR ID 670) name changed from “RX Hosp--Surg Prim Site” and not required after 2022

Section: Other-Confidential

- EHR Reporting (NAACCR ID 2508) increased text length from **1000** to **4000**

Section: Record ID

- NAACCR Record Version (NAACCR ID 50) default value has been changed to **230** for NAACCR version **23.0**

Section: Special Use

- Coding Proc (NAACCR ID 70000) default value has been changed to **37** to represent **2023** data standards
- RX Text--Surgery (1) (NAACCR ID 70066) increased text length from **333** to **1333**
- RX Text--Surgery (2) (NAACCR ID 70067) increased text length from **333** to **1333**
- RX Text--Surgery (3) (NAACCR ID 70068) increased text length from **333** to **1333**

- Surg Prim Proc 03-2022 (1) (NAACCR ID 70053) name changed from “Surg Prim Proc (1)” and not required after 2022
- Surg Prim Proc 03-2022 (2) (NAACCR ID 70054) name changed from “Surg Prim Proc (2)” and not required after 2022
- Surg Prim Proc 03-2022 (3) (NAACCR ID 70055) name changed from “Surg Prim Proc (3)” and not required after 2022

Section: Text-Diagnosis

- Text--DX Proc--PE (NAACCR ID 2520) increased text length from 1000 to 4000
- Text--DX Proc--X-ray/Scan (NAACCR ID 2530) increased text length from 1000 to 4000
- Text--DX Proc--Scopes (NAACCR ID 2540) increased text length from 1000 to 4000
- Text--DX Proc--Lab Tests (NAACCR ID 2550) increased text length from 1000 to 4000
- Text--DX Proc--Op (NAACCR ID 2560) increased text length from 1000 to 4000
- Text--DX Proc--Path (NAACCR ID 2570) increased text length from 1000 to 4000
- Text--Staging (NAACCR ID 2600) increased text length from 1000 to 4000
- RX Text--Surgery (NAACCR ID 2610) increased text length from 1000 to 4000
- RX Text--Radiation (Beam) (NAACCR ID 2620) increased text length from 1000 to 4000
- RX Text--Radiation Other (NAACCR ID 2630) increased text length from 1000 to 4000
- RX Text--Chemo (NAACCR ID 2640) increased text length from 1000 to 4000
- RX Text--Hormone (NAACCR ID 2650) increased text length from 1000 to 4000
- RX Text--BRM (NAACCR ID 2660) increased text length from 1000 to 4000
- RX Text--Other (NAACCR ID 2670) increased text length from 1000 to 4000

Section: Text-Miscellaneous

- Text--Remarks (NAACCR ID 2680) increased text length from 1000 to 4000

Section: Treatment-1st Course

- “RX Summ--Surg Prim Site 03-2022” (NAACCR ID 1290) name change – “RX Summ--Surg Prim Site” and not required after 2022

Appendix A – Retired Items

Section: Cancer Identification

- Date Conclusive DX Flag (NAACCR ID 448)
- Date of Diagnosis Flag (NAACCR ID 391)
- Date of Mult Tumors Flag (NAACCR ID 439)

Section: Demographic

- Date of Birth Flag (NAACCR ID 241)

Section: Edit Overrides/Conversion History/System Admin

- ICD-O-2 Conversion Flag (NAACCR ID 1980)
- SEER Coding System – Current (NAACCR ID 2130)
- SEER Coding System – Original (NAACCR ID 2120)
- SEER Record Number (NAACCR ID 2190)

- SEER Type of Follow-Up (NAACCR ID 2180)

Section: Follow-up/Recurrence/Death

- Date of Death--Canada Flag (NAACCR ID 1756)
- Date of Last Cancer (tumor) Status Flag (NAACCR ID 1773)
- Date of Last Contact Flag (NAACCR ID 1751)
- Recurrence Date--1st Flag (NAACCR ID 1861)

Section: Hospital-Specific

- Date of 1st Contact Flag (NAACCR ID 581)
- Date of Inpt Adm Flag (NAACCR ID 591)
- Date of Inpt Disch Flag (NAACCR ID 601)

Section: Special Use

- Date Surg Prim First Flag (NAACCR ID 80011)
- Date Surg Proc (1) Flag (NAACCR ID 70003)
- Date Surg Proc (2) Flag (NAACCR ID 70005)
- Date Surg Proc (3) Flag (NAACCR ID 70007)
- Follow-up Flag (NAACCR ID 70009)
- Pat No Contact (NAACCR ID 70024)
- RX Date Transp Endo Flag (NAACCR ID 70044)

Section: Stage/Prognostic Factors

- Date Regional Lymph Node Dissection Flag (NAACCR ID 683)
- Date of Sentinel Lymph Node Biopsy Flag (NAACCR ID 883)

Section: Treatment-1st Course

- Date 1st Crs RX CoC Flag (NAACCR ID 1271)
- Date Initial RX SEER Flag (NAACCR ID 1261)
- RX Date BRM Flag (NAACCR ID 1241)
- RX Date Chemo Flag (NAACCR ID 1221)
- RX Date DX/Stg Proc Flag (NAACCR ID 1281)
- RX Date Hormone Flag (NAACCR ID 1231)
- RX Date Mst Defn Srg Flag (NAACCR ID 3171)
- RX Date Other Flag (NAACCR ID 1251)
- RX Date Rad Ended Flag (NAACCR ID 3221)
- RX Date Radiation Flag (NAACCR ID 1211)
- RX Date Surg Disch Flag (NAACCR ID 3181)
- RX Date Surgery Flag (NAACCR ID 1201)
- RX Date Systemic Flag (NAACCR ID 3231)

Section: Treatment-Subsequent & Other

- Subsq RX 2ndCrs Date Flag (NAACCR ID 1661)

- Subsq RX 3rdCrs Date Flag (NAACCR ID 1681)
- Subsq RX 4thCrs Date Flag (NAACCR ID 1701)

Appendix B – Retired Items

- Retired Date of Birth Flag (NAACCR ID 241)
- Date of Diagnosis Flag (NAACCR ID 391)
- Date of Last Contact Flag (NAACCR ID 1751)
- Date of Last Cancer (tumor) Status Flag (NAACCR ID 1773)

Appendix C - Retired Items

- Retired Date of Birth Flag (NAACCR ID 241)
- Date of 1st Contact Flag (NAACCR ID 581)

PART II DATA TRANSMISSION STANDARDS

Section II.1 Summary

Communication between a reporting facility and the California Cancer Registry (CCR) can be of two forms: some types of records are transmitted from the reporting facility to the CCR, and other types of records are transmitted from the CCR to the reporting facility.

Currently, there are three record types that must be transmitted from the reporting facility to the central registry. They are: New Case Records, Modified Records, and Deletion Records. All these record types are described in Section II.3. To comply with the California Cancer Registry's data exchange standards, each reporting facility's cancer registry is required to submit all three types of records following the procedures described below.

There is one type of record that is sent from the central registry to the reporting facility. This is Shared Follow-Up, described in Section II.3.4. Acceptance of that record by the reporting facility is optional (although we strongly recommend it).

Cases should NOT be transmitted to the CCR using a format that is earlier than the year that the case is reportable. For example, 2021 cases, as defined by the CCR casefinding rules, cannot be submitted in the format required in 2018.

Section II.2 Explanatory Notes

Reporting requirements vary by item and record type and are listed in the “CCR Required from Reporting Facility” column in the Appendices. Each record type is described in a table, which must be consulted to determine whether a particular item is required. The following key explains the terms used in the “CCR Required from Reporting Facility” column. For NAACCR XML new cases and modified records, data items should not be sent if they are blank/empty.

Requirement Key

- **No:** Not required. Do not submit this data item to the central registry.
- **Yes:** Required. The facility must submit this data item to the central registry, unless blank is an allowable value for it and the value is blank (e.g., middle name can be blank, so if it is blank, don't transmit it; blank will be assumed). Refer to the allowable values section for the item in California Cancer Reporting Standards, Volume III to determine if blank is allowable. Modified record items not sent will be interpreted as changes to blank if the original new case provided non-blank values.
- **Yes*:** Required if available. If the information can be obtained, and it is not blank/empty, the facility must submit it to the central registry. If not available or not applicable, it should not be transmitted.
- **Conditional:** Required on selected cases dependent on one or more conditions being true, such as the case's diagnosis date being before or after a certain date.
- **Yes, gen by facility:** Required, but the facility's registry software must generate the data item value based on a standard algorithm, rather than a user manually entering the data item value.

Items that are facility-generated are described in more detail, including allowable values, in Cancer Reporting in California, Volume III.

Section II.3 Transmission between Hospitals and Regions

II.3.1 Selection of Cases

Only cases which are reportable under California Cancer Registry (CCR) requirements are to be included in transmissions to the CCR. A reporting facility may elect to abstract certain benign conditions or skin cancers to meet local interest or ACoS requirements; however, these cases are not to be transmitted to the CCR.

Transmit all cases with a 2 or 3 (in situ or malignant) in Histology - Behavior, EXCEPT the following histologies occurring in the skin (site codes C44.0 -C44.9):

- 8000-8005 Neoplasms, malignant, NOS of the skin
- 8010-8046 Epithelial carcinomas of the skin
- 8050-8084 Papillary and squamous cell carcinomas of the skin
- 8090-8110 Basal cell carcinomas of the skin

In addition, for cases diagnosed after 1995, do not transmit any in situ (Histology - Behavior of 2) of the cervix (site codes C53.0 - C53.9). Beginning with cases diagnosed January 1, 2001, benign (behavior code 0) and uncertain behavior (behavior code 1) intracranial and central nervous system tumors are reportable. Borderline ovarian tumors (behavior code 1) in ICD-O-3 are no longer reportable, effective with cases diagnosed January 1, 2016 and forward.

- For cases diagnosed 2018-2020, refer to ICD-O-3 for current morphology codes see [2018 ICD O 3 Annotated Histology List](#).
- For cases diagnosed in 2021, refer to ICD-O-3 for current morphology codes see [2021 ICD O 3.2 Annotated Histology List](#).
- For cases diagnosed in 2022 ~~forward, refer to the (2022)~~ refer to ICD-O-3 for current morphology codes see [2022 ICD O 3.2 Annotated Histology List](#).
- For cases diagnosed in 2023-forward, refer to the 2023 Annotated Histology List for current morphology codes see [2023 ICD O 3 Annotated Histology List](#).

II.3.2 New Case Record

For every abstract of a reportable case that is completed at the reporting facility, a New Case Record must be sent to the CCR. Timing considerations for reporting are discussed in Standards, Volume I, Section IX.1.1.

New case record data items of interest to the CCR are specified in Appendix A (key to requirement statuses is in Section II.2) in the same order as NAACCR Volume II, Chapter VII, except that additional California-specific data items are listed in the Special Use section. The XML formatting for a new case record is described below in section II.5.1.

PLEASE NOTE: Due to various issues with modified record transmit files for different facility software vendors, revised requirements in the next section, including the addition of three new date/time data items, will affect the data submitted in new case abstract transmit files as well. Please refer section II.3.3 Modified Records below for more information and populate the new date/time data items accordingly as part of the 2023 data changes.

II.3.3 Modified Record

The CCR requires facilities to use the Modified Record to transmit data modifications for abstracts already submitted as New Case Records. The Modified Record, record type M, has the same data items of interest as the New Case Record, record type A, so Appendix A now lists the data items for both record types. ~~Follow-up Flag is the only item that has a different requirement status between the two record types. The flag documents if the Modified Record contains updates to follow-up information. Vendors will be responsible for generating this value using the following guidelines:~~

~~Generate a flag of 1 in Follow-up Flag when an update has been made to any of the following fields:~~

- ~~• Date of Last Cancer (tumor) Status.~~
- ~~• Date of Last Cancer (tumor) Status Flag.~~
- ~~• Vital Status~~
- ~~• Date Cancer Status~~
- ~~• Date Cancer Status Flag~~
- ~~• Cancer Status~~
- ~~• Follow-Up Hospital Last~~
- ~~• Follow-Up Last Type (Patient)~~
- ~~• Follow-Up Last Type (Tumor)~~
- ~~• Follow-Up Registry Next~~
- ~~• Follow-Up Next Type~~
- ~~• Physician Follow-Up~~
- ~~• Cause of Death~~
- ~~• Place of Death State~~
- ~~• DC State File Number~~
- ~~• Contact Name~~
- ~~• Addr Current No & Street~~
- ~~• Addr Current Supplementl~~
- ~~• Addr Current City~~
- ~~• Addr Current State~~
- ~~• Addr Current Postal Code~~
- ~~• Telephone~~
- ~~• Pat No Contact~~
- ~~• Follow-Up Contact Name~~
- ~~• Follow-Up Contact No&St~~
- ~~• Follow-Up Contact Suppl~~
- ~~• Follow-Up Contact City~~
- ~~• Follow-Up Contact State~~
- ~~• Follow-Up Contact Postal~~
- ~~• Place of Death Country~~
- ~~• Addr Current Country~~
- ~~• Follow-Up Contact Country~~

The Modified Record is designed to allow facilities to submit the current version of an abstract, providing the cumulative updates to all fields since the original new case was submitted. ~~But over the years since modified record processing was implemented, the volume of records included in modified record transmit files has become excessive, and they can't all be processed automatically, creating a heavy burden on the regional registries and the CCR to process them. The primary reason for the excessive records transmitted is misunderstandings about how to recognize a case that should be included in a modified record transmit file. The CCR is also concerned that some cases may be excluded incorrectly or included incorrectly by any facility software that is only comparing dates changed with last transmit dates and not comparing times too, especially when changes are made on transmit day before and after the modified record transmit file is created. Other inconsistencies have been found in modified records generated by different facility software vendors too. Thus, these requirements have been revised as part of the 2023 data changes to provide more clarity and more specific instructions for vendors to avoid misunderstandings and promote standardized processing among different systems.~~

Facility software vendors MUST NOW INCLUDE ONLY ONE LATEST MODIFIED RECORD PER UPDATED CASE in a modified record transmit file, regardless of the number and types of changes made since the case was last included in a new case or modified record transmit file.

At least one facility software vendor has been sending multiple records per case in the same transmit file, such as one record for recent follow-up-related changes and another record for recent non-follow-up related changes. But again, the excessive volume has overwhelmed the regional registry central system users. The CCR never intended to allow this kind of duplication for any reason. Thus, for any facility software vendors including the same case multiple times in the same modified record transmit file, please implement this change immediately to stem the tide of excessive and unnecessary modified records transmitted. Follow-up Flag is no longer required in case that was causing any confusion.

Due to vague, conflicting, or just inadequate requirements for Date Case Report Exported (formerly Date Case Transmitted) in NAACCR data standards and CCR data standards and the need to make case selection for a modified record transmit file more precise, new California-only date/time items are now required in Appendix A (when not blank). For systems looking for cases updated after the previous transmit date, comparing the times in addition to the dates will allow systems to include additional updates made on the previous transmit day but after that previous transmit file creation. Similarly, if any system includes the previous transmit date in the comparison, the system can avoid including cases already transmitted by comparing times to exclude cases updated before the modified record transmit file was created (should have already been transmitted).

These new items are also needed because some facility software systems have been preserving the date the original new case was first included in a new case transmit file in Date Case Report Exported (per long-term CCR definition), while other systems have been overwriting that date every time the case is included in a modified record transmit file. Currently, CCR standards require preserving that first new case transmit date, the NAACCR XML data exchange standard requires overwriting this data item value upon further transmits, and NAACCR volume II is too vague to make it clear which standard is required for modified records. The date/time the case was last exported in a modified record transmit file is necessary too, though, so the CCR now requires items for both dates/times.

These new CA-only data items will be suggested to various national standard-setting working groups, but for now, they must be implemented as California-only items. Please use them to determine case inclusion in modified record transmit files and transmit them to the CCR when not blank in new case abstract transmit files and modified record transmit files.

- **Date/Time New Case First Exported** – the date and time a case was originally included in a new case transmit file (e.g., 2023-10-08 15:34:16.000). Once set, the CCR requires that this original new case transmit date/time NEVER be updated unless there was a problem with the original new case transmit and a new case abstract retransmit had to be included in a subsequent new case transmit file (the CCR defines retransmits as new case abstract retransmits, when necessary, rather than lumping them together with modified record transmits). Use the above sample date/time format in new case and modified record transmit files. This data item must be generated in all new case abstract transmit file

records and included, unchanged, in all modified record transmit file records.

Data conversions for existing cases are necessary to populate this new data item for the 2023 data changes. If the facility system has been tracking that original new case abstract transmit date in Date Case Report Exported (formerly date case transmitted), or perhaps in another internal database field not transmitted to the CCR, please convert that original transmit date into Date/Time New Case First Exported using the sample format above. If no original new case transmit time is available, default that portion of the value to 23:59:59.999. If the original new case abstract transmit date is not available anywhere, then just go ahead and convert from Date Case Report Exported, even though it may have been overwritten with a later modified record transmit date. Please DO NOT generate modified records for this conversion as that would just add to the CCR's high modified record volume. The CCR will do its best to convert this value to the best value possible too given the data captured in its central system.

- **Date/Time Case Last Changed** – the latest date and time one or more case data item values with a “yes” in the Update Triggers Modified Record column of the CCR's Volume II, Appendix A: New Case and Modified Record Items was last changed at the facility (e.g., 2023-11-01 17:41:52.000). This date/time must be included in the initial new case transmitted, and it should be updated in real time as changes are made at the facility, with the last date/time updated included in modified record transmit file records. Use the above sample date/time format in new case and modified record transmit files.

Data conversions for existing cases are necessary to populate this new data item for the 2023 data changes too. Facility software vendors should use the Date Case Last Changed value to populate this new data item. If time case last changed has not been captured in the past, please default the time portion of the value for existing cases to 23:59:59.999. Please DO NOT generate modified records for this conversion. The CCR will perform it too.

- **Date/Time Modified Record Last Exported** – the date and time a case was last included in a modified record transmit file (e.g., 2023-12-01 07:25:05.000). This item must be left blank (and thus not transmitted) in XML new case abstract transmit file records, but it should be generated in the facility database upon case inclusion in all modified record transmit file records and included in those transmitted records. **PLEASE NOTE: If the case is retransmitted in a new case transmit file, then any date value in this field should be changed to blank at the facility prior to inclusion of the case in the new case transmit file.** Use the above sample date format when including the value in modified record transmit files.

Data conversions for existing cases are necessary to populate this new data item for the 2023 data changes too. If facility systems have been tracking a separate date last included in a modified record transmit for each case that can be used, that value should be used to populate this new item in existing cases. Otherwise, facility software vendors should use the Date Case Last Changed value to default this new data item too in a data conversion performed immediately after the latest modified record transmit file has been created. If time has not been captured in the past, please default the time portion in existing cases to 23:59:59.999 Please DO NOT generate modified records for this conversion. The CCR will perform it too.

A case must ONLY be included in the next modified record transmit file when ALL of the following conditions are true:

- The current Date/Time Case Last Changed is later than the Date/Time New Case First Exported (later date or same date but later time).
- Date/Time Modified Record Last Exported is blank **OR** Date/Time Case Last Changed is later than Date/Time Modified Record Last Exported (later date or same date but later time).
- At least one item changed since the latest export (modified record or initial new case if that's all there is) is an item with an Update Triggers Modified Record specification of yes in the CCR's Volume II, Appendix A: New Case and Modified Record Items.

PLEASE NOTE: It is excessive, unnecessary, and highly inefficient to create, transmit, receive, and process modified records for cases where the ONLY updates are changes the CCR/regional registries provided to the facility, such as shared follow-up data and regional registry quality control changes (from visual editing, audits, etc.), because the central system already has the information. Thus, if the facility system is not already excluding them, please find ways to avoid including such cases in modified record transmits when those are the only/ types of updates made. If other types of updates were made too, there is no choice but to include those cases, but it makes no sense to send cases again as modified records when the central system already has all the updated information. Facility software vendors should strive to avoid **any additional work effort placed on facility registrars to identify cases for inclusion in modified record transmit files, but facility vendor systems may need to prompt users at times to identify sets of manual updates made (upon save) that were all provided by the CCR/regional registries to help flag those cases for inclusion or exclusion in the next modified record transmit file.**

Regardless which changed items require case inclusion in the next modified record transmit file, almost all data items in the case must be resent to the CCR in modified records. The exceptions would be items with blank/empty/space(s)/null values in XML transmits and those that should not be included according to the Appendix A CCR Required from Reporting Facility Software requirements and triggers modified records requirements.

Follow-Up Flag should no longer be included in modified record transmit files at all. Some facility software vendors have been setting this field to 1 (one or more follow-up fields updated) for all modified records and some have been setting it to 0 (no follow-up fields updated) for all modified records. And misunderstandings surrounding this item seem to be a big reason that excessive modified records have been transmitted. If both follow-up and non-follow-up changes are made, it is impossible to determine the right value for that field anyway.

Upon creation of the modified record transmit file, Date/Time New Case First Exported, Date/Time Case Last Changed, and Date/Time Modified Record Last Exported (if not blank/empty/null, etc.) should be included for all cases. Date/Time Modified Record Last Exported should be updated in these selected facility database cases and included in the modified record transmit file cases upon file creation so the cases will have a new date/time to compare with the Date/Time Case Last Changed for the next modified record transmit, and CCR/regional registries can see that this date/time is later than each case's Date/Time Last Changed in

troubleshooting and elimination of all but the latest modified record for each case when duplicates are received.

Apparently, some modified records are not being received with the right record type attribute value, but this a requirement, not an option, and it is one of the most critical pieces of information transmitted, so please make sure the record type attribute in new case abstract transmit files is set to A and the record type attribute in modified record transmit files is set to M. The XML formatting instructions in section II.5.1 require using the record type attribute for the whole file rather than including a record type item element in every modified record transmitted. New case abstracts should only be included in new case transmit files with the file's record type attribute set to A and modified records should only be included in transmit files with the file's record type attribute set to M. Section II.4 also notes that we should have A or M at the end of these file names to allow identification as new case abstracts or modified records in the file too. Record type item elements should NOT be included in either type of XML transmit file to avoid redundancy. The record type attribute placed at the beginning of the XML transmit file identifies the record type for all records in the file.

Resolving Coding Procedure Confusion

When modified record processing began, the CCR already had a standard for the former corrections, active follow-up, and deletions to be transmitted with the latest system coding procedure rather than the original coding procedure upon new case completion. But that requirement conflicted with the requirement to send ALL the latest hospital case item values in each modified record (which would include coding procedure). After some analysis, it appears that facility software vendors have mostly just been sending the original coding procedure upon initial case completion. Given the difference between modified records and the former update records, section I.1 has been changed to require that coding procedure must be generated upon original new case completion, and it should not be changed when later updates occur, so subsequent modified records transmitted should continue to include that original new case coding procedure.

CCR/Regional Registry QC Changes Not Applied to Facility Cases Creates Modified Record Conflicts

As noted above, the visual editing changes and other quality control (QC) changes made at the central registry by regional registry staff are reported back to facility registrars (via the Visual Editing Discrepancies List report and by other means whenever possible). But often reporting facilities do not make the same changes in their database, setting up difficult decisions in the central system when later modified records are received for those cases. There are multiple reasons the same QC changes aren't made in the facilities' database cases, including disagreement with the regional registry visual editors' decisions and limited time and resources. But if those regional registry QC changes are not also made at the facility, then later modified records for the associated cases may be transmitted with their original values, conflicting with QC changes made in the central system.

The original central system modified record processing design called for applying all modified record values to the central registry case report automatically, thus often overwriting visual

editing and other QC changes. But that design was implemented because of an assumption that the facility registrars would start making the same changes in their versions of the cases too. To attain the goal of the highest possible data quality for research, facility registrars and regional registry visual editors should strive to work out disagreements, one way or another, so that the same data item values are captured in both systems' versions of the case for future modified record transmits. Only then can we reduce the number of these modified record conflicts with QC changes and reduce the burden on the central system and regional registry users to resolve them when additional modified records are transmitted.

Modified records will be rejected in the central registry's database system if they are unable to pass edits. Please make sure cases pass edits before inclusion in a modified record transmit file.

~~A Modified Record will be sent to the CCR only after its related new case has been transmitted and will be triggered when the reporting facility changes one or more data item values with an Update Triggers Modified Record specification of yes in Appendix A: New Case and Modified Record Items. Regardless which changed items trigger a Modified Record's creation, all data items in the case must be resent to the CCR, except for items with blank/empty/space(s)/null values and those that should not be included according to the Appendix A CCR Required from Reporting Facility Software requirements. A Modified Record will only be generated by vendor software after an updated field triggered the record as outlined above and the facility has chosen to generate Modified Record files in the vendor software. This will allow for multiple changes to be sent in the same Modified Record. Hospital registrars will have these Modified Records generated and included in their monthly transmissions to the CCR as appropriate.~~

~~There should not be any additional work effort placed on the Hospital registrars regarding generation of these records. The field Date Case Last Changed will continue to be updated by the software to accurately reflect the date the abstract was last updated.~~

~~**Modified Records will now be rejected from the Eureka database software if they are unable to pass edits.**~~

~~**PLEASE NOTE: DO NOT TRIGGER a Modified Record whenever items change due to the receipt of shared follow-up from the CCR.**~~

II.3.4 Shared Follow-Up Record

Reporting facilities which agree in advance may be able to receive shared follow-up. Whenever the CCR receives follow-up data on a reporting facility's patient (and, possibly, that patient's tumor) from a different source (another reporting facility, state death records, DMV, etc.), the CCR may make available to the reporting facility the most current follow-up data available on that patient and tumor. The fields Follow-Up - Last Type (Patient) and Follow-Up - Last Type (Tumor) in the Shared Follow-Up record will indicate the type of reporting source that supplied the latest follow-up information being provided.

See Appendix B for the record layout for Shared Follow-Up records. (Key to symbols is in Section II.2.)

II.3.5 Deletion Record

Whenever a reporting facility decides to delete a case from its database that has previously been reported to the CCR, a Deletion record must be transmitted to the CCR.

EXCEPTION: DO NOT transmit a deletion record when the reporting facility is deleting a duplicate or the case is being associated with a new reporting source.

The following special item is used in the record layout for this record type:

Text - Transaction Remarks - This is a 150-character field (3 lines of 50). It must contain a comment indicating the reason for deleting the record.

If a deletion is made because the CCR's regional registry instructed the reporting facility to do so, the Text-Transaction Remarks field should contain only an "R" or "REGION" (all upper case).

See Appendix C for the record layout of deletion records. (Key to symbols is in Section II.2.)

Section II.4 Transmit File Naming Conventions

Transmitted Data Files

All electronic files must be sent in a secure manner as instructed by the Central and Regional Registries. File names must conform to the following schema:

- A three-letter abbreviation assigned by the CCR regional registry to the hospital (the case file suffix).
- Plus, the four-digit year (YYYY) showing the year the file was created.
- Plus, the three-digit day of the year (001 through 366) showing the day the file was created.
- Plus, a single letter (A-Z) showing the sequence within one day the file was created. (Different file types can have the same sequence letter.)
- For XML new case and modified record files, the record type initial/code must be included in the file name as well.
- Plus, a standard suffix/extension according to the record type (see below).

For example, the first file of new cases created on February 1 at hospital abbreviated STJ would be named STJ2021032AA.XML and the second file of new cases created that day would be STJ2021032BA.XML.

The following table shows the record type initials/codes, suffixes/extensions, and record lengths, where appropriate.

Table 1. Data File Types

Record Type	Initial	File Suffix	Record Length
New Case (Abstract)	A	.XML	Not applicable
Modified Record	M	.XML	Not applicable
Shared Follow-Up	S	.XSH	805 807 plus CR/LF
Deletion	D	.XDL	367 371 plus CR/LF

Section II.5 Formatting Standards

II.5.1 XML File Structure for New Cases and Modified Records

Please refer to the latest NAACCR XML Data Standard document available on the NAACCR XML Data Exchange Standard web page (<https://www.naacr.org/xml-data-exchange-standard/>), section 2 and all of its subsections, for the bulk of the specific XML formatting requirements for new cases and modified records. Make sure 2023 versions and file references are used in any NAACCR XML data files transmitted for 2023 forward diagnoses. Some additional clarifications and requirements specific to California are included here.

1) XML dictionaries

Section 2.1 Dictionary Specifications in the NAACCR XML Data Standard document describes the XML dictionaries that must be created and referenced in NAACCR XML data files to define all the valid individual data items that may be transmitted and metadata about them.

- a. The **v23 Base Dictionary** available on the [NAACCR XML Data Exchange Standard](#) web page defines all valid 2023 NAACCR items. It is maintained by NAACCR.
- b. An XML user dictionary has been created for CCR-specific data items that must/may be transmitted by facilities to the regional/central registry too. This user dictionary has been uploaded to the [NAACCR website](#), but the CCR also maintains it on its website under [Registrar Resources and Reporting](#), in the Volume II – 2023 section. CCR-specific data items that are generated/obtained elsewhere by the CCR (which have a “no” requirement for facilities in Appendix A) are not included in this user dictionary.

2) Both dictionaries must be identified as attributes of the root <NaaccrData> element of any NAACCR XML data file transmitted:

```
<NaaccrData baseDictionaryUri="http://naacr.org/naaccrxml/naaccr-dictionary-230.xml"
userDictionaryUri="https://www.ccrca.org/submit-data/cancer-registrars-hospitals-and-
facilities/reporting-by-cancer-registrars/california-facility-to-ccr-naaccr-dictionary-230-v1.xml"
```

3) Please include the <NaaccrData> element attributes for specification version (now required by NAACCR) and timeGenerated (Optional). The specification version attribute should be set to the latest XSD file version, currently “1.6.”

```
timeGenerated="2021-08-16T08:09:19-04:00"
specificationVersion="1.6"
```

4) As noted in section 2.2.1 of the NAACCR XML Data Standard document, the full hierarchical structure of a NAACCR xml data file is defined by these elements:

```
<NaaccrData>
  <Item/></Item>
```

```

    <Patient>
      <Item></Item>
      <Tumor>
        <Item></Item>
      </Tumor>
    </Patient>
  </NaaccrData>

```

That document states that there can only be one root <NaaccrData> element per data file, one <Patient> element per patient, and one or more <Tumor> elements per diagnosis for each patient. There can be multiple <Patient> elements per data file. The majority of the individual data items within a new case or modified record will be transmitted in child <Item> elements within a parent <Patient> element and a related parent <Tumor> element. Thus, in a NAACCR XML data file, each new case or modified record is transmitted within a single patient/tumor element pair. The parent XML element for each data item is documented in Appendix A.

- 5) Despite one of the examples in the NAACCR XML Data Standard document, each <Patient> element submitted must contain at least one <Tumor> element.
- 6) **IMPORTANT NOTE: TO AVOID THE POSSIBLE CREATION OF DUPLICATES FOR THE REGIONAL AND CENTRAL REGISTRIES, PLEASE ONLY PROVIDE PATIENT/TUMOR ELEMENT PAIRS IN NEW CASE DATA FILES FOR CASES THAT HAVE NOT ALREADY BEEN TRANSMITTED.**

If the patient has multiple primaries diagnosed and abstracted at the same time or at least before the next transmission, multiple <Tumor> elements can be transmitted within a <Patient> element in the same new case data file, but otherwise each new case data file <Patient> element should contain just one <Tumor> element for a new diagnosis not previously submitted for a new case abstract. <Patient> elements for the same patients may be sent again in subsequent files with new <Tumor> elements for additional diagnoses when new diagnoses are abstracted and need to be transmitted. A <Patient> element should only be sent in a new case file if there is at least one new <Tumor> element for a new abstracted diagnosis that has not previously been transmitted.

- 7) For modified records, if tumor level information was updated in only one of a patient's new case abstracts, then just send the patient/tumor element pair associated with that new case abstract that was updated. If tumor level information was changed in multiple abstracts for the same patient, then multiple <Tumor> elements can be sent within the <Patient> element. If only patient level information was updated where there are multiple new case abstracts for different primaries/diagnoses captured at the facility, then only one patient/tumor element pair needs to be sent to notify the regional and central registries of the changes.

- 8) <Item> elements should not be transmitted in NAACCR XML new cases and modified records if their values are blank, empty, one or more spaces only, or any flavor of null. They should also be omitted if the item has a “no” in the CCR Required from Reporting Facility Software column of Appendix A.
- 9) As noted in section II.3.3, regardless which changed items trigger a Modified Record’s creation, all data items in the case must be resent to the CCR, except for items with blank/empty/space(s)/null values and those that should not be included according to the Appendix A CCR Required from Reporting Facility Software requirements. Thus, the CCR requires a patient/tumor element pair and **ALL** their non-blank patient and tumor level data items required for a new case to be transmitted in a modified record too.
- 10) Theoretically, in XML, it does not matter what order the <Item> elements are transmitted, but when troubleshooting is required and the contents of a data file must be displayed, it will help if they are ordered consistently from patient to patient and tumor to tumor. <Item> elements can’t be ordered precisely like they are ordered in Appendix A because all the patient items have to be placed within the <Patient> element and all the tumor items have to be placed within the <Tumor> element, but please order each <Patient> and <Tumor> elements’ non-blank <Item> elements in the same order the items appear in Appendix A for each parent element. They are ordered there to match the order in the NAACCR Volume II, Chapter VII – Record Layout, which is sorted mostly alphabetically by section and then sorted alphabetically by NAACCR item name within each section. There are some exceptions to the alphabetization within sections in the NAACCR record layout, as the four NCDB items begin the Special Use section (followed by CA-specific items alphabetized), and the CS site specific factors fields are ordered by factor number, rather than by strict alphabetization.
- 11) For NAACCR XML data files, even though there are recordType and naaccrRecordVersion NAACCR XML IDs that could be transmitted in <Item> elements within the <NaaccrData> parent XML element, they should **NOT** be transmitted that way as that would duplicate record type and record version attributes. The record type **MUST** be transmitted as the recordType attribute of the <NaaccrData> root XML element in a NAACCR data file. And the record version is identified using the recordVersion attribute of the <NaaccrDictionary> element of the NAACCR base dictionary, which is referenced in the data file, so there is no need to include an item element for it either. NPI registry ID (if available and not blank) and Registry ID should be the only direct child <Item> elements within the root <NaaccrData> element. Transmitting record type and record version in this way is documented in Appendix A for those items as well.

<NaaccrData baseDictionaryUri=“http://naaccr.org/naaccrxml/naaccr-dictionary-230.xml”

```

userDictionaryUri="https://www.ccrca.org/submit-data/cancer-registrars-hospitals-
and-facilities/reporting-by-cancer-registrars/california-facility-to-ccr-naaccr-
dictionary-230-v1.xml"
recordType="A" timeGenerated="2023-08-16T08:09:19-04:00"
specificationVersion="1.6" xmlns="http://naaccr.org/naaccrxml">
<NaaccrDictionary dictionaryUri="http://naaccr.org/naaccrxml/naaccr-dictionary-230.xml"
naaccrVersion="230"
specificationVersion="1.6"
dateLastModified="2023-10-01T12:00:00-04:00"
description="NAACCR 23 base dictionary"
xmlns="http://naaccr.org/naaccrxml">

```

- 12) For transmissions from facilities to the regional registry/central registry, the <NaaccrData> recordType attribute should be set to "A" for a new case data file, or it should be set to "M" for a modified records file.
- 13) "Group" or "Parent" items that contain child items must not be transmitted in NAACCR XML, so they have been removed from Appendix A. Each group/parent item's child items must be given their own <Item> elements. The group/parent items are listed in the NAACCR Volume II, Chapter VII record layout without any connection to their child items, but they have been omitted from Appendix A to make sure facility software doesn't try to send them. Old "reserved" items have also been removed from Appendix A.
- 14) Transmitted NAACCR XML new case data files and modified record data files must be limited to a maximum of 2,097,152 bytes each to prevent any one overly large file upload from holding up other file uploads in the central system.

Some sample XML for a 2023 California facility NAACCR XML new case file is included on the next page. The sample includes the first few <Patient> element's child <Item> elements and the first few <Tumor> element's child <Item> elements for two patients, leaving out some items that would be blank. Each with patient has just one tumor/diagnosis.


```

<NaaccrData
  baseDictionaryUri="http://naaccr.org/naaccrxml/naaccr-dictionary-230.xml"
  userDictionaryUri="https://www.ccrca.org/submit-data/cancer-registrars-hospitals-and-facilities/reporting-by-cancer-registrars/california-facility-to-ccr-naaccr-dictionary-230-v1.xml"
  recordType="A"
  timeGenerated="2023-08-16T08:09:19-04:00"
  specificationVersion="1.6"
  xmlns="http://naaccr.org/naaccrxml">
  <Item naaccrId="registryId">0000009700</Item>
  <Patient>
    <Item naaccrId="addrCurrentCountry">USA</Item>
    <Item naaccrId="birthplaceCountry">USA</Item>
    <Item naaccrId="birthplaceState">CA</Item>
    ...
  <Tumor>
    <Item naaccrId="behaviorCodeIcdO3">3</Item>
    <Item naaccrId="casefindingSource">10</Item>
    <Item naaccrId="dateOfDiagnosis">20230722</Item>
    ...
  </Tumor>
</Patient>
<Patient>
  <Item naaccrId="addrCurrentCountry">USA</Item>
  <Item naaccrId="birthplaceCountry">USA</Item>
  <Item naaccrId="birthplaceState">CA</Item>
  ...
  <Tumor>
    <Item naaccrId="behaviorCodeIcdO3">2</Item>
    <Item naaccrId="casefindingSource">10</Item>
    <Item naaccrId="dateOfDiagnosis">20230723</Item>
    ...
  </Tumor>
</Patient>
</NaaccrData>

```

II.5.2 Record Type

This is a one-character field used to identify the type of record being processed. The hospital computer system must supply the appropriate code letter at the time that the file is created. The appropriate code for each record type is listed below:

New Case: A

Modified Record: M

Deletion: D

The code for the record type generated by the central registry is

Shared Follow-up: S

II.5.3 NAACCR or Central Registry Record Version

This field must contain the version code that identifies which revision of a record layout was used to create a record for the recipient. Once your software system has been modified to transmit records using the latest record layouts in this volume, all records transmitted must include the latest record version code(s), shown parenthetically after the record version data item name in each Appendix.

II.5.4 Shared Follow-up and Deletion Record Layouts

Appendix B provides the shared follow-up flat file record layout and Appendix C provides the deletion record layout.

Section II.6 Rules to Computer Generate Data Items for Standard Setting Organizations

The California Cancer Registry is required to submit data to standard-setting organizations. There are a number of data items that are generated for these submissions. These organizations include the North American Association of Central Cancer Registries (NAACCR), NCI's Surveillance, Epidemiology and End Results Program (SEER) and the Center for Disease Control and Prevention's National Program of Cancer Registries (NPCR). Please refer to California Cancer Reporting System Standards, Volume III, for specifications for the data items listed below.

II.6.1 Data Items

- **Census Cod Sys 1970/80/90 (120)**
- Census Tr Poverty Indictcr (145)
- COC Coding Sys--Current (2140)
- COC Coding Sys--Original (2150)
- Coding System for EOD (870)
- Computer Ethnicity (200)
- Computer Ethnicity Source (210)
- **County at DX Analysis (89)**
- ICD Revision Number (1920)
- **IHS Purchased/Referred Care Delivery Area (194)**
- Industry Source (300)
- Follow-Up Source- Central (Mapped from Last Type of Follow-Up (Patient)) (1791)
- Morph Coding Sys—Current (470)
- Morph Coding Sys—Original (480)
- Occupation Source (290)
- Race Coding Sys – Current (170)
- Race Coding Sys – Original (180)
- Record Number Recode (1775)
- **Reporting facility restriction flag (1856)**
- RuralUrban Continuum 2013 (3312)
- RUCA 2000 (339)
- RUCA 2010 (341)
- RX Coding System – Current (1460)
- ~~SEER Coding Sys – Current~~
- ~~SEER Coding Sys – Original~~
- ~~SEER Type of Follow-Up~~
- ~~SEER Record Number~~
- SEER Cause Specific COD (1914)
- SEER Other COD (1915)
- Site Coding Sys – Current (450)
- Site Coding Sys – Original (460)
- Surv-Date Active Followup (1782)
- Surv-Flag Active Followup (1783)
- Surv-Mos Active Followup (1784)
- Surv-Date Presumed Alive (1785)
- Surv-Flag Presumed Alive (1786)
- Surv-Mos Presumed Alive (1787)
- Surv-Date DX Recode (1788)
- **Urban Indian Health Organization (UIHO) (284)**
- **UIHO City (285)**
- URIC 2000 (345)
- URIC 2010 (346)
- Vital Status Recode (1762)

Part III Quality Control Standards

Section III.1 2023 Data Conversions

Automatic and manual data conversions must be performed on facility databases as part of the 2023 data changes implementation as specified in the latest NAACCR 2023 Implementation Guidelines and Recommendations document, section 14 – Appendix C Conversions, Recalculations, and Manual Review Logs. This document is available on the NAACCR website's Implementation Guidelines page (<https://www.naacr.org/implementation-guidelines/>).

Section III.2 Edits

One method used by the regional registry for insuring data quality is to pass submitted records through computer edits to assess whether coding rules have been properly followed. Two types of computer edits will be applied to New Case Records and Modified Records when they are received: allowable value edits and interfield edits. Allowable Value edits check individual data items for valid codes or other types of allowable values. Interfield edits compare the contents of two or more fields for consistency. These edits are described in the latest CCR edits metafile. See Section III.3 in this manual for the acceptance standards.

CCR edits must be run and any edit errors corrected before the creation of a New Case Record or Modified Record submission file. Modified Records will be rejected by the CCR's Eureka database software if they are unable to pass the CCR edits, and the facility will be required to fix the necessary data items prior to the next scheduled monthly transmit. Please see Section II.3.3 for further requirements for the Modified Record.

Section III.3 Acceptance Procedure

III.3.1 Acceptance Standards for Software

Hospitals (and other reporting sources) wishing to develop their own systems for automated reporting to the regional registry, or vendors wishing to market software which meets California Cancer Registry requirements, are required to demonstrate that they have procedures in place to assure the accuracy of the data being collected. In order for another method of automated reporting to be accepted for reporting to the California Cancer Registry and its regional registries, the hospital or vendor must demonstrate the following:

1. Data must conform to the specifications described in this document.
2. Software must allow all valid values in data item fields.
3. All records must pass the allowable value edits (California Cancer Reporting System Standards, Volume III).
4. All records must pass the interfield edits (California Cancer Reporting System Standards, Volume III).

A hospital or vendor must demonstrate its ability to meet these standards before its system is accepted and it will be expected to continue to meet these standards. Each time a hospital or vendor changes the registry software (i.e., changes the version) it must again demonstrate its ability to meet these standards.

III.3.2 Test Submission

In order for the California Cancer Registry to determine whether a hospital or vendor meets the above requirements, the hospital or vendor must submit test records of each type for approximately 50 cases, covering one-month, three-months, or six-months; whichever time period is closest to 50 cases. A test file cannot contain only easy cases but must contain a sample that is representative of the normal caseload. Given the transformation to NAACCR XML new case and modified record reporting, and the direction not to transmit items with blank, empty string, spaces, or null values, at least one test case should be included with all items entered in order to demonstrate the ability to send all data items (except those items with a “no” in the facility requirement column in Appendix A). After the submission is evaluated by the California Cancer Registry, the reporting facility or vendor will receive notification of problems detected and what changes, if any, need to be made before the reporting facility's or vendor's software can be accepted for automated reporting.

When Volume II requirements change in such a way that vendor software must be revised, then the vendor must submit additional test files to demonstrate that they meet the new requirements.

Appendices A, B, & C (Exchange Items/Records)

Appendices A, B, & C are presented in spreadsheet format and are available in the Volume II – 2023 section of the [CCR's Registrar Resources and Reporting webpage](#).