CALIFORNIA CANCER REPORTING SYSTEM STANDARDS

VOLUME II

STANDARDS FOR AUTOMATED REPORTING

Record Layout Version 21

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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.

In response to requests from users of this document, the exchange records (Appendices A, B, & C) are now posted in an Excel (PDF) spreadsheet.

On CCRCAL.ORG, this volume and its related appendices file will be listed in the Volume II – 2021 section of the CCR's Registrar Resources and Reporting web page (https://www.ccrcal.org/submit-data/cancer-registrars-hospitals-and-facilities/reporting-by-cancer-registrars/).

To comply with the national 2021 data changes, the CCR is requiring facilities to submit New Case Abstracts and Modified Records in NAACCR XML version 21.0 format. 2021 and later diagnoses must be submitted in this format, but once the facility software has been updated for 2021, new cases and modified records for all diagnosis years must be submitted this way using coding procedure 35. 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, and their record layouts in Appendix B and Appendix C have been given a new record version (P and J respectively) because of the new length of 15 for medical record number.

Appendices A, B, C – High Level Changes:

- The previous Appendices A and B for new cases and modified records have been combined into a single new Appendix A to eliminate redundancy. As a result, the appendices for the Shared Follow-Up Record and the Deletion Record have been renamed Appendix B and Appendix C and there is no longer an Appendix D.
- The new Appendix A has been transformed to represent a list of all CCR-recognized items that may appear in the now required XML data file format for new cases and modified records, rather than a flat file new case record layout.
- Since Appendix A has been changed to provide the new case and modified record items in a combined list, it now includes the "Update Triggers Modified Record" column.
- Columns for "XML NAACCR ID" and "Parent XML Element" have been added to Appendix A. XML NAACCR ID provides the means to identify an item's value within XML new case and modified record data files. The parent XML element identifies the higher-level NAACCR XML element within which each item element must be transmitted.
- A new "Section" column was also added to Appendix A to organize the listed items into their NAACCR categories. Items are sorted first by section and then alphabetically by NAACCR item name within each section.
- Appendix A data items are now sorted in the same order as the NAACCR Volume II, Chapter VII Record Layout.
- The Start and End columns have been removed from Appendix A as they are not needed for XML.
- NAACCR Identifier numbers in the 70000-79999 range for facility-to-CCR transmitted state requestor items and in the 80000-89999 range for CCR-generated state requestor items have been created. This was necessary for creating XML dictionaries for these items. Numbers that high should never be reused by NAACCR.

Appendix A - Retired/Removed Data Items:

- All Reserved data items have been removed as they do not belong in an XML data file.
- All group/parent items have been removed because each child item sharing the same space as those items previously must be identified individually in XML data files.
- ACOS Approved Flag was retired in 2018 and has now been removed.
- Date Cancer Status and Date Cancer Status Flag, retired in 2018, have now been removed.
- The Medical Record Number item previously required in the state requestor section (CCR identifier #E1744) was retired because the NAACCR medical record number's maximum length is now long enough for the CCR (CCR identifier #E1645).
- The Over-ride – Name/Sex item (CCR identifier #E1560) formerly in the state requestor section was replaced with the NAACCR item (CCR identifier #E1905) in 2018, so the old item was removed.

- SEER EOD Derived Version was removed because the new Schema ID Version Current field for 2021 will provide the same information.

Appendix A - Changed Items

- AJCC TNM Post Therapy Path (yp) M renamed from AJCC TNM Post Therapy M
- AJCC TNM Post Therapy Path (yp) N renamed from AJCC TNM Post Therapy N
- AJCC TNM Post Therapy Path (yp) N Suffix renamed from AJCC TNM Post Therapy N Suffix
- AJCC TNM Post Therapy Path (yp) Stage Group renamed from AJCC TNM Post Therapy Stage Group
- AJCC TNM Post Therapy Path (yp) T renamed from AJCC TNM Post Therapy T Suffix
- AJCC TNM Post Therapy Path (yp) T Suffix renamed from AJCC TNM Post Therapy T
- Coding Proc default value has been changed to 35 to represent 2021 data standards
- EOD Prostate Pathological Extension renamed from Prostate Pathological Extension
- Figo Stage maximum length increased from 2 to 5 characters
- Follow-up Flag requirement set to Yes for modified records and No for new cases
- Follow-Up Last Type (Patient) now required (yes)
- Grade Post Therapy Path (yp) renamed from Grade Post Therapy (#E1958)
- Height and Weight renamed from CER_Height and CER_Weight
- HER2 IHC Summary required for DX Year 2018-2020
- HER2 ISH Dual Probe Copy Number required for CoC Only facilities, DX Year 2018-2020
- HER2 ISH Dual Probe Ratio required for CoC Only facilities, DX Year 2018-2020
- HER2 ISH Single Probe Copy Number required for CoC Only facilities, DX Year 2018-2020
- HER2 ISH Summary required for CoC Only facilities, DX Year 2018-2020
- HIV Status required for DX Year 2018-2021
- Last Follow-Up Hospital renamed from Follow-Up Hospital Last to match retired NAACCR name and given its retired NAACCR number – 2430
- LDH Lab Value renamed from LDH Pretreatment Lab Value
- LDH Level renamed from LDH Pretreatment Level
- Medical Record Number maximum length increased from 11 to 15 characters
- NAACCR Record Version has been changed to clarify where in the XML to send it, and its default value has been changed to 210 for NAACCR version 21.0
- Name—Maiden no longer required (no) and no longer triggers a modified record
- Name—Mother First renamed from Mother First Name
- Rad--Boost RX Modality now conditional, required for diagnosis year earlier than 2018; modified record trigger changed to yes
- Record Type has been changed to clarify where in the XML to send it
- Recurrence Date--1st now required if available (yes*)
- Recurrence Date--1st Flag now required if available (yes*)
- Recurrence Type--1st now required if available (yes*)
- Reg-Data was split into its ten component items
- RX Hosp--Scope Reg 98-02 renamed from RX Hosp Scope Reg 98-02 to match NAACCR name
- RX Hosp--Surg Oth 98-02 renamed from RX Hosp Surg Oth 98-02 to match NAACCR name
- RX Hosp--Surg Site 98-02 renamed from RX Hosp Surg Site 98-02 to match NAACCR name

- RX Text—Surgery officially split into RX Text—Surgery 1, RX Text—Surgery 2, and RX Text—Surgery 3 (up to 333 characters each) as Special Use section items; RX Text—Surgery facility requirement and modified record trigger reset to no
- State requestor/Special Use CA-Specific items issued CA-Specific NAACCR numbers
- Tobacco items renamed to match NPCR names

Appendix A – New Items

Section: Stage/Prognostic Factors

- AJCC TNM Post Therapy Clin (yc) M
- AJCC TNM Post Therapy Clin (yc) N
- AJCC TNM Post Therapy Clin (yc) N Suffix
- AJCC TNM Post Therapy Clin (yc) Stage Group
- AJCC TNM Post Therapy Clin (yc) T
- AJCC TNM Post Therapy Clin (yc) T Suffix
- ALK Rearrangement
- BRAF Mutational Analysis
- CA 19-9 PreTX Lab Value
- EGFR Mutational Analysis
- Grade Post Therapy Clin (yc)
- NRAS Mutational Analysis

Section: Treatment-1st Course

- Neoadjuvant Therapy
- Neoadjuvant Therapy-Clinical Response
- Neoadjuvant Therapy-Treatment Effect

Section: Edit Overrides/Conversion History/System Admin

- AJCC API Version Current
- AJCC API Version Original
- AJCC Cancer Surveillance API Version Current
- AJCC Cancer Surveillance API Version Original
- Schema ID Version Current
- Schema ID Version Original

Section: Patient-Confidential

- Name--Birth Surname

Section: Special Use

- NCDB--COVID19--Tx Impact
- NCDB--SARSCoV2--Pos
- NCDB--SARSCoV2--Pos Date
- NCDB--SARSCoV2—Test

Appendix B - Changed Items

- Record Version [P]
- Medical Record Number – Col End: 64; Length: 15
- Rest of items after Medical Record Number – Col Start and Col End changed to accommodate medical record number length change.

Appendix C - Changed Items

- Record Version [J]
- Medical Record Number – Col End: 64; Length: 15
- Rest of items after Medical Record Number – Col Start and Col End changed to accommodate medical record number length change.

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. Effective for cases diagnosed 01-01-2021 forward, refer to ICD-O-3.2 for current morphology codes **(see https://www.naaccr.org/icdo3/).**

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.

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.

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	807 plus CR/LF
Deletion	D	.XDL	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.naaccr.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. At this time, that document still uses 2018 examples, so it is important to make sure 2021 versions and file references are used in any NAACCR XML data files transmitted for 2021 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 base dictionary (N21) available on the NAACCR XML Data Exchange Standard web page defines all valid 2021 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 (https://www.ccrcal.org/submit-data/cancer-registrars-hospitals-and-facilities/reporting-by-cancer-registrars/), in the Volume II – 2021 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://naaccr.org/naaccrxml/naaccr-dictionary-210.xml"
userDictionaryUri="https://www.ccrcal.org/submit-data/cancer-registrars-hospitals-and-
facilities/reporting-by-cancer-registrars/california-facility-to-ccr-naaccr-dictionary-210-v1.xml"
```

3) Although they are optional in the NAACCR requirements, please include the <NaaccrData> element attributes for time generated and specification version. The specification version attribute should be set to the latest XSD file version, currently "1.4."
   timeGenerated="2021-08-16T08:09:19-04:00"
   specificationVersion="1.4"

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) **<u>IMPORTANT NOTE:</u> 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-210.xml"
    userDictionaryUri="https://www.ccrcal.org/submit-data/cancer-registrars-hospitals-
        and-facilities/reporting-by-cancer-registrars/california-facility-to-ccr-naaccr-
        dictionary-210-v1.xml"
    recordType="A" timeGenerated="2021-08-16T08:09:19-04:00"
    specificationVersion="1.4" xmlns="http://naaccr.org/naaccrxml">
<NaaccrDictionary dictionaryUri="http://naaccr.org/naaccrxml/naaccr-dictionary-210.xml"
    naaccrVersion="210" specificationVersion="1.4"
    description="NAACCR 21 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.

Some sample XML for a 2021 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-210.xml"
        userDictionaryUri="https://www.ccrcal.org/submit-data/cancer-registrars-hospitals-and-
        facilities/reporting-by-cancer-registrars/california-facility-to-ccr-naaccr-dictionary-210-
        v1.xml"
        recordType="A"
        timeGenerated="2021-08-16T08:09:19-04:00"
        specificationVersion="1.4"
        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">20210722</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">20210723</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

- COC Coding Sys - Current
- COC Coding Sys - Original
- Coding System for EOD
- Computer-Derived Ethnicity (formerly Spanish Surname)
- Computer-Derived Ethnicity Source
- ICD Revision Number
- Industry Source
- Follow-Up Source- Central (Mapped from Last Type of Follow-Up (Patient))
- Morph Coding Sys - Current
- Morph Coding Sys – Original
- Occupation Source
- Race Coding Sys - Current
- Race Coding Sys - Original
- RX Coding System - Current
- SEER Coding Sys - Current
- SEER Coding Sys – Original
- SEER Type of Follow-Up
- SEER Record Number
- Site Coding Sys - Current
- Site Coding Sys – Original
- Census Tr Poverty Indictr
- Surv-Date Active Followup
- Surv-Flag Active Followup
- Surv-Mos Active Followup
- Surv-Date Presumed Alive
- Surv-Flag Presumed Alive
- Surv-Mos Presumed Alive
- Surv-Date DX Recode
- RuralUrban Continuum 2013
- RUCA 2000
- RUCA 2010
- URIC 2000
- URIC 2010
- Vital Status Recode
- Record Number Recode
- SEER Cause Specific COD
- SEER Other COD

Part III Quality Control Standards

Section III.1 2021 Data Conversions

Automatic and manual data conversions must be performed on facility databases as part of the 2021 data changes implementation as specified in the latest NAACCR 2021 Implementation Guidelines and Recommendations document, section 12 – Appendix B Conversions and Manual Review Logs. This document is available on the NAACCR website's Implementation Guidelines page (https://www.naaccr.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 – 2021 section of the CCR's Registrar Resources and Reporting webpage (https://www.ccrcal.org/submit-data/cancer-registrars-hospitals-and-facilities/reporting-by-cancer-registrars/).