



Comprehensive Overview of Registry Plus CRS Plus

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Division of Cancer Prevention and Control

Registry Plus CRS Plus

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CCR Tools for Processing Data

- Registry Plus tools used to support central registry operations of processing, maintenance, and use of central registry data
 - **Prep Plus**
 - Register and edit data from reporting sources
 - Assigns unique AbsRefID
 - Prepare abstracts for processing in CRS Plus
 - **CRS Plus**
 - Link, consolidate, maintain, and use central cancer registry data

CRS Plus - (Central Registry System)

- Used to manage central registry---link, consolidate, and maintain source records in a central database
- Creates consolidated patient and tumor tables for the same person and tumor with the best values from multiple sources
- Provides for automatic determination of multiple primary tumors and consolidation of data items from multiple case reports into incidence records
- Produces standard extracts for NPCR and NAACCR call-for-data submission, user-specified extracts, and NAACCR-formatted files

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CRS Plus Features

- Retain all source records
- Query tool to extract data
- Provides standard management reports
- Incorporates staging algorithms for CS and TNM
- Customizable to meet registry needs

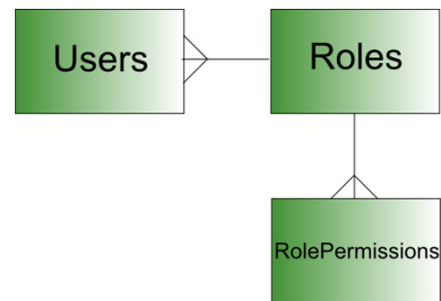
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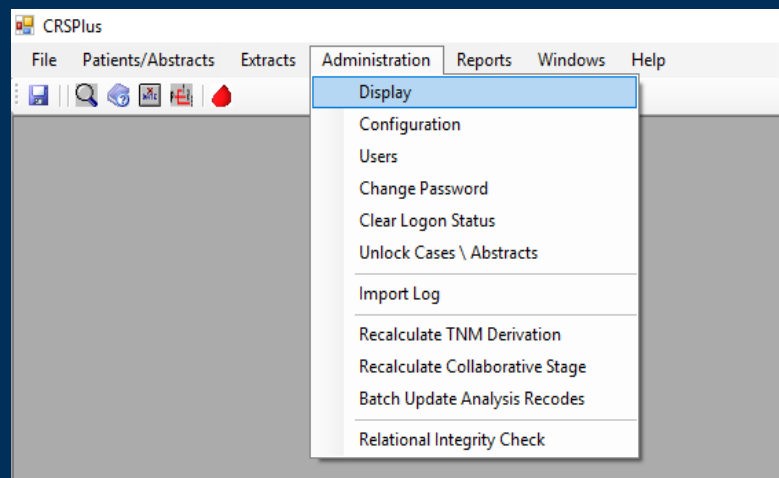
CRS Plus User Authorization Levels

- Administrator
- Consolidator
- Editor
- Viewer
- Table Editor



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Administrative Functions



Modifying Displays

Display Configuration X

Abstract Display

Available NAACCR Type A Fields

- Ambiguous Terminology DX
- Autopsy
- Behavior (73-91) ICD-O-1
- Cancer Status
- Census Block Grp 1970-90
- Census Cod Sys 1970/80/90
- Census Ind Code 1970-2000
- Census Ind Code 2010 CDC
- Census Occ Code 1970-2000
- Census Occ Code 2010 CDC
- Census Occ/Ind Sys 70-00
- Census Tr Cert 1970/80/90
- Census Tract 1970/80/90
- cM Blank Validation Flag
- cN Blank Validation Flag
- Coding System For EOD
- Comorbid/Complication 1
- Comorbid/Complication 2
- Comorbid/Complication 3

Selected fields for Abstract Display

- PATIENT IDENTIFICATION
- Patient ID Number
- Patient System ID-Hosp
- CANCER IDENTIFICATION
- Tumor Record Number
- PATIENT INFO
- Name--Last
- Name--First
- Name--Middle
- Name--Suffix
- Name--Alias
- Social Security Number
- Race 1
- Race 2
- Race 3
- Race 4
- Race 5
- Spanish/Hispanic Origin
- Computed Ethnicity
- Computed Ethnicity Source
- NHIA Derived Hisp Origin
- Race--NAPIIA(derived API)
- IHS Link
- Birthplace
- Birthplace--State
- Birthplace--Country
- Date of Birth
- Date of Birth Flag
- Age at Diagnosis
- Sex
- Text--Usual Occupation
- Text--Usual Industry

>
<

Section Headers

- Patient Info
- Other
- Cancer Identification
- Census
- Treatment
- CER Data
- Collaborative Stage
- TNM Stage
- SEER Summary Stage
- Physician Info
- Survival Info

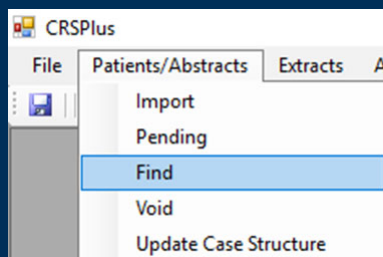
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Add Section
Delete Section
Rename

Save
Close

Updating Records

- How to modify data
- Data Interchange buttons
- Run EDITS



Search

Enter Search Criteria

Name-Last Name-First

Name-Middle Sex

Social Security Race 1

Patient ID Number

Include voided abstracts in search Include pending abstracts in search

Search Reset Customize

ID	Status	Name-First	Name-Last	Name-Maiden	Nam
108098	Complete	Case	Test		Y

Tumors \ Abstracts

- 108098 Test, Case RACE: 01 Hispanic: 0 Vital: 1 Cause of Death: 0000
- 00 - C649 DxDate: 2016 MedRef ID: 108173
- [A] H: 0010999999 TumSeq: 00 TumSeq: 00 PSite: C649 Histology ICD02: 8312/3 ICD03: 8312/3 DxDate: 2016

View Selected Patient
Update Selected Patient
Update Case Structure
Print
Columns
Close
Help

CRSPPlus - [Interactive Patient Update]

File Patients/Abstracts Extracts Administration Reports Windows Help

Test Case Patient ID: 108098 Site: C649, DxDate: 2016, Seq: 00 Facility: 0010999999(00), AbsRef ID: 12470, Seq: 00

SAVE Button

Patient Grid Consolidated Record Tumor Grid Abstract Grid

Field Name	Field Value
Patient Identificat...	
Patient ID Number	108098
Patient Info	
Name-Last	Test
Name-First	Case
Name-Middle	Y
Name-Suffix	
Name-Alias	
Social Security Number	364319968
Race 1	01 - White
Race 2	88 - No further race do...
Race 3	88 - No further race do...
Race 4	88 - No further race do...
Race 5	88 - No further race do...
Spanish/Hispanic Origin	0 - Non-Spanish, non...
Computed Ethnicity	
Computed Ethnicity Source	
NHIA Derived Hsp Origin	
Race-NAPIA(derived API)	
IHS Link	
Birthplace	999
Birthplace-State	NY - New York
Birthplace-Country	USA
Date of Birth	19221119
Date of Birth Flag	
Sex	1 - Male
Follow-Up/Death	
Date of Last Contact	2016
Date of Last Contact Flag	
Vital Status	1 - Alive

Running EDITS in Update

CRSPPlus - [Interactive Patient Update]

File Patients/Abstracts Extracts Administration Reports Windows Help

Test Case Patient ID: 108098 Site: C649, DxDate: 2016, Seq: 00 Facility: 0010999999(00), AbsRef ID: 12470, Seq: 00

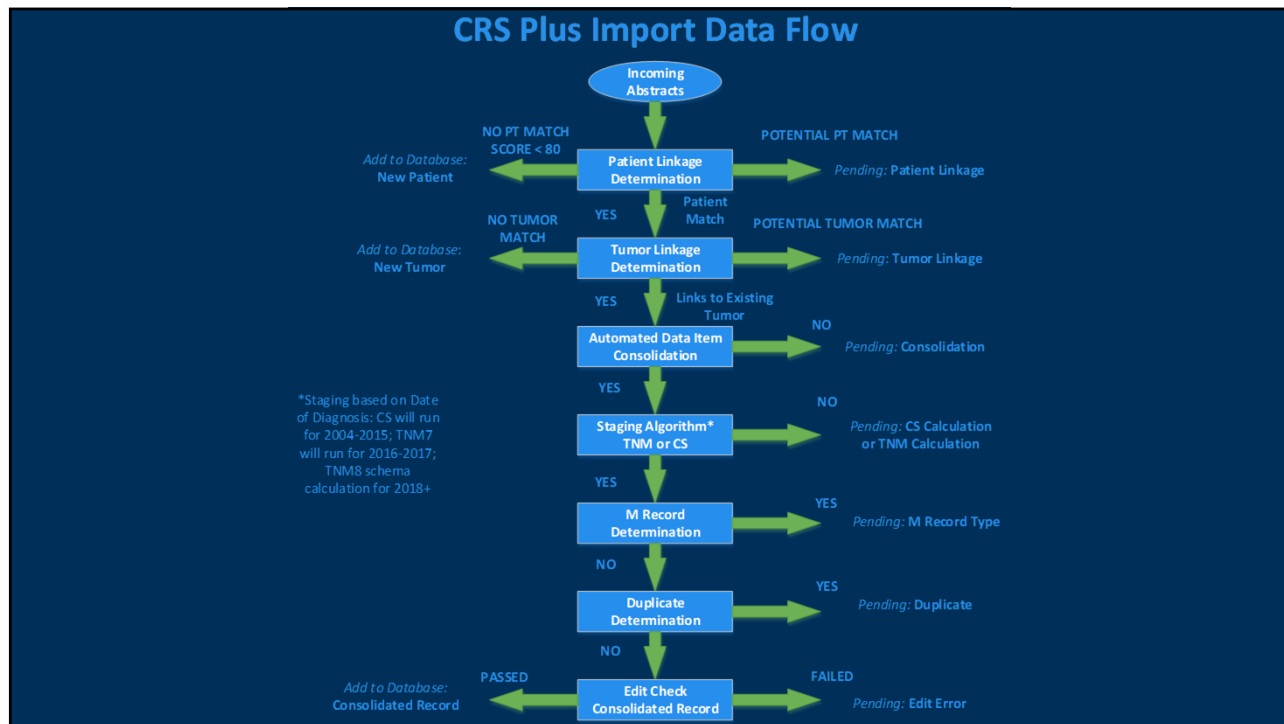
Central: Vs16 NPCR Required - Consol-All Edits

Follow-up Source Central, Date of DX (NPCR)
 If year of Date of Diagnosis > 2005, then Follow-Up Source Central cannot be blank
 Edit Fields:
[Date of Diagnosis: 2016](#)
[Follow-Up Source Central: <BLANK>](#)

TNM Stage, Date Dx, Type Report Source (NPCR)
 TNM Path Stage Group cannot be blank if Date of Diagnosis is greater than or equal to 2016
 Edit Fields:
[Date of Diagnosis: 2016](#)
[TNM Clin Stage Group: 1](#)
[TNM Path Stage Group: <BLANK>](#)
[Type of Reporting Source: 1](#)

EDITS

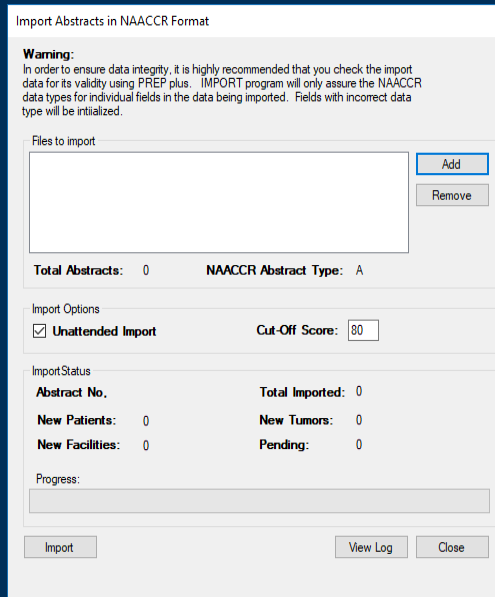
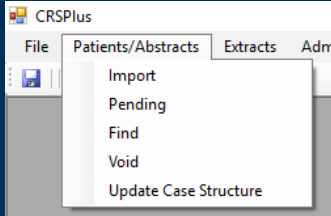
Field Name	Field Value
Patient Identificat...	
Patient ID Number	108098
Tumor Record Number	
Address at Dx	
Addr at DX-No & Street	3363 Elm Way
Addr at DX-Supplementl	...
Addr at DX-City	Inglewood
Addr at DX-State	ME - Maine
Addr at DX-Postal Code	999999999
County at DX	999
Addr at DX-Country	ZZU
Census	
Census Tract 2000	
Census Block Group 2000	
Census Tr Certainty 2000	
Census Tract 2010	
Census Block Group 2010	
Census Tr Certainty 2010	
Census Tr Poverty Indictr	



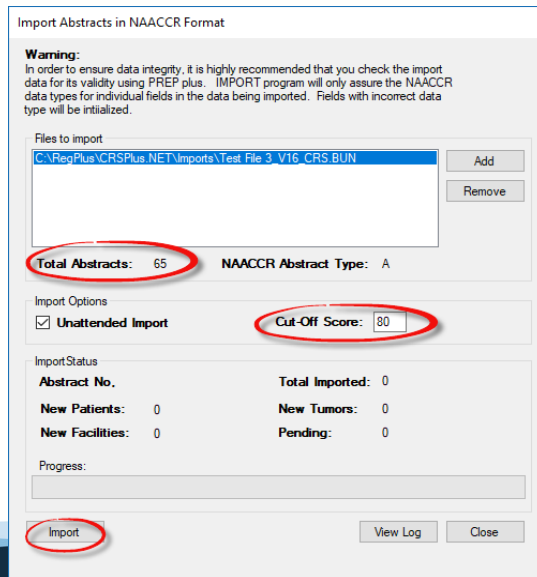
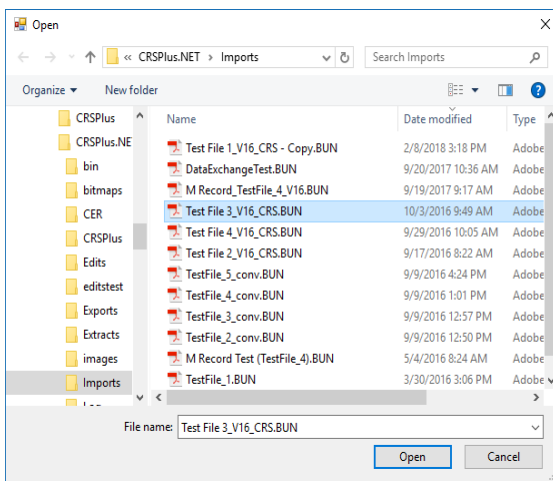
Importing Prepped Bundles from Prep Plus

- Select files to import
- Unattended import allows user to import multiple files without manual intervention in between files (can run overnight)
- Import Activity Report
- Import Log
 - Provides tracking of all imports

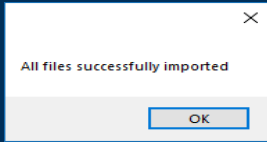
CRS Plus Import Window



CRS Plus Import



CRS Plus Import Report



ReportViewer

STATE CANCER REGISTRY
Import Case Management Report

Date Imported	FileName	Total Records Directly To Database					Records to Pending											Total Pending	
		Total Records Imported	New Patients	New Tumors	New Facilities	Total Disposed	PSEQ	TSEQ	PLINK	TLINK	CONS	DUPL	EDIT	CSTG	MTYPE	TNM	TSGC		
4/17/2018	Test File 3_V16_CRS.BUN	65	0	0	15	0	16	0	20	14	15	0	0	0	0	0	0	0	65
Total		65	0	0	15	0	16	0	20	14	15	0	0	0	0	0	0	0	65

PSEQ* - In Pending for tumor sequence of new patient
 TSEQ* - In Pending for tumor sequence of new tumor
 PLNK* - In Pending for patient linkage
 TLNK* - In pending for tumor linkage
 CONS* - In pending for data item consolidation
 DUPL* - In pending for duplicate
 EDIT* - In pending for edits error
 CSTG* - In pending for collaborative stage
 MTYPE* - In Pending for MType
 TNM* - In Pending for TNM Calculation
 TSGC* - In Pending for TNM Stage Group Compare

CRS Plus Import Log

Administration Reports Windows

- Display
- Configuration
- Users
- Change Password
- Clear Logon Status
- Unlock Cases \ Abstracts
- Import Log**
- Recalculate TNM Derivation
- Recalculate Collaborative Stage
- Batch Update Analysis Recodes
- Relational Integrity Check

Select a date range
From: 4/10/2018 To: 4/17/2018 Search Select All Close Print

Date Imported	User ID	Bundle Total	Imported	Disposed	New Patient	NewTumor	New Facilities	Filename	Message
4/17/2018 10:51...	DOE	65	65	0	0	0	15	C:\RegPlus\CRSPI...	Import Complete

Detail ID	AbsRefID	Patient ID	MedRefID	Status1	Status2	Name	DxDate	Score
162070	4421	106828	0	99	4	Brockman, Nika	20160325	168
162071	4422	106829	106904	103	8	Breedlove, Inez	20160203	170
162072	4423	107088	107163	103	8	Cavazos, Mali	20160430	170
162073	4424	107171	0	99	4	Dyer, Stephan	20161003	167
162074	4425	113783	113860	103	8	Camacho, Bianca	20160108	168
162075	4426	106893	0	99	4	Cortes, Winford	20160507	170
162076	4427	0	0	99	2	Carl, Jaelyn	20160908	111

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Flag for Release of Records

- Code values and definitions defined by Registry Plus Users Group (RPUG) for Unusual Follow-up Method
- Carried over from Prep Plus and populated in Unusual Follow-Up Method for Interstate Data Exchange VA and DoD records
- Can also be manually updated in CRS Plus for individual cases (i.e. At patient's request)

TLC Plus (Tumor Linkage & Consolidation)

- **Provides automated support for CTR decision-making**
 - Do multiple abstracts for the same person represent SAME or DIFFERENT tumors?
 - For multiple abstracts for the same tumor, what consolidated values should be used for analysis?
 - Demographic (Patient tables)
 - Cancer identification (Medical Summary tables)
 - Treatment summary (Medical Summary tables)
- **TLC Plus decisions can be verified by CTR**
- **Consolidation rules can be modified or de-activated by central registry**

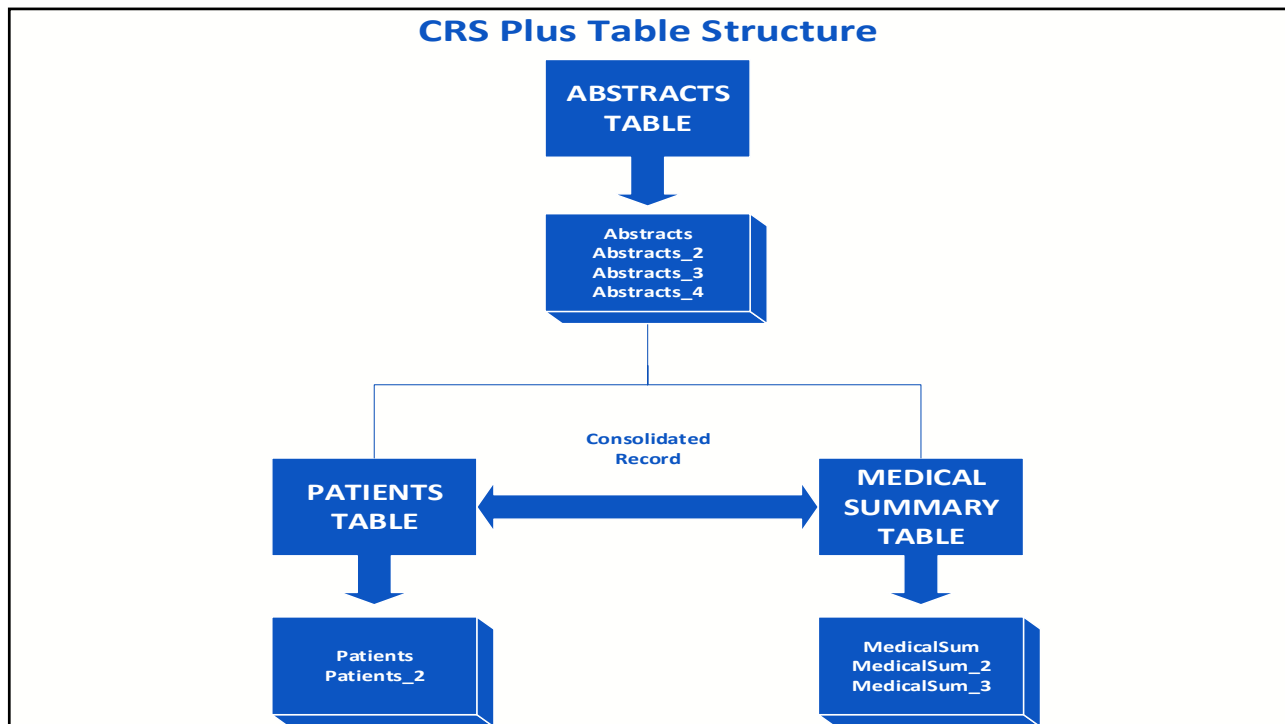
Abstracts Table-Status2

Why is the
abstract
in pending?

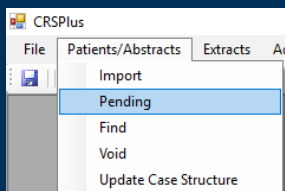
Status2	Description
0	Manually Sent Back to Pending
1	Invalid Tumor Sequence on New Patient
2	Patient Linkage cannot be determined
4	Tumor Linkage Manual Review
8	Incomplete consolidation (manual review required)
9	Duplicate abstract
10	Edit Error (failed edits after auto-consolidation)
11	Collaborative Stage Calculation Error
12	Invalid Sequence on New Tumor
13	Modification Record
16	TNM Calculation
18	TNM Stage Group Comparison

Defined Data Flow

Pending Status	Meaning/Action
Patient Linkage	Potential Patient match
Sequence New Patient	Does not link to patient in database; Seq > 00
Tumor Linkage	Potential Tumor match
Sequence New Tumor	Potential new tumor; review sequence number
Data Item Consolidation	One or more data items requires manual review
Duplicate Check	Based on Reporting Facility
Modification Record	Updated record reported by Same Facility
Staging Algorithm: TNM or CS	Cannot derive NPCR Derived TNM Stage Group or CS – one or more items invalid
Edit Error	Sent to pending for edits



Processing Pending Abstracts



Pending Filter Criteria

There are currently 152 items in a pending status.

Last Name: First Name:

Patient ID: Years/Date of Dx: -

Reporting Facility: SSN:

Primary Site:

Pending Status Code:

CRSPPlus - [PendingAbstracts]

File Patients/Abstracts Extracts Administration Reports Windows Help

Filter

DxDate	PSite	RepHosp
2016	C700	001099999
2016	C778	001099999
2016	C700	001099999
2013	C189	001099999
2013	C189	001099999
2016	C341	001099999
2014	C186	001099999
2016	C341	001099999
2016	C209	001099999
2016	C209	001099999
2016	C649	001099999
2016	C619	001099999
2016	C421	001099999
2016	C421	001099999
2016	C679	001099999
2016	C384	001099999
2016	C384	001099999
2016	C619	001099999

Pending Abstract Details:

AbsRef ID: 20533
 RecType: A
 LastName: Terry
 FirstName: Dorothea
 DxDate: 2016
 PSite: C209
 RepHosp: 001099999
 Status: (1) New Patient Invalid Tumor Sequence
 HeldFor:

Pending-Facility:001099999(00),AbsRef ID:11419

Compare

Field Name	Field Value
Patient Identific...	
Patient ID Number	0
Patient System ID-Hosp	
Cancer Identific...	
Tumor Record Number	
Patient Info	
Name-Last	Test
Name-First	Case
	M
Number	999999999
	01 - White
	88 - No further race do...
	88 - No further race do...
	88 - No further race do...
	88 - No further race do...
Race 5	0 - Non-Spanish, non...
Spanish/Hispanic Origin	
Computed Ethnicity	
Computed Ethnicity Source	
NHIA Derived Hisp Origin	
Race-NAPIA(derived API)	
IHS Link	
Birthplace	999
Birthplace-State	ZZ - Unknown if U.S. ...
Birthplace-Country	ZZU
Date of Birth	19260320
Date of Birth Flag	
Age at Diagnosis	090
Sex	1 - Male

Dispose Abstract As

New Patient New Tumor

Assign Sequence Number Central

New Facility Void

Potential Matches (0)

User: DOE

Patient Linkage

- **First step: Blocking performed to identify all consolidated records similar to the incoming record**
 - Soundex of last name
 - Birth date
 - SSN
- **Blocking –allows patient linkage to be completed more efficiently**

Patient Linkage

- **Second step: Matching specific data items from the incoming record against all consolidated records to assign match score**
- **Data items used to compute score:**

Date of Birth	SSN
First Name	Sex
Middle Name	Race 1
Last Name	

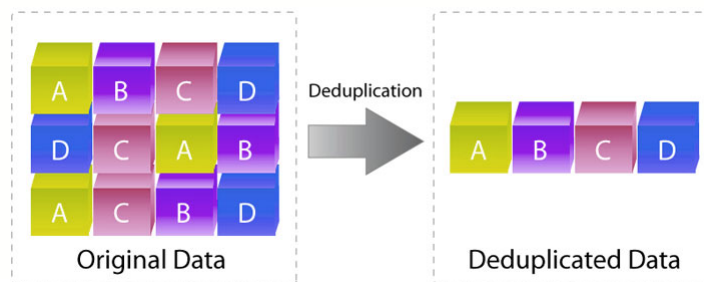


Patient Linkage

- Matching algorithm assigns different scores for exact or partially matched data items
- Full weight assigned when short names match
- CRS Plus uses two cut-off scores to identify potential matches
 - Highest possible score – 170
 - All records with a score of 155 or higher are considered definite matches (Patient ID transferred)
 - Records with score less than 80 are eliminated as matches (Low score can be determined by Registry)

Deduplication

- Abstracts with limited or unknown demographic information
 - Dispose to database as New Patients if score is lower than low cutoff value
- Deduplication should be performed routinely



Patient Linkage Potential Dispositions

- **New Patient:** No records with match score =>80
 - Record sent for sequence number check
 - New Patient record and Tumor record created
- **Pending Patient Linkage:** One or more records with scores = 80-154 OR one record with score => 155 but another record matched
 - Record sent to pending for manual patient linkage
- **Linked to Patient:** Only one record with score => 155 OR one record with score => 155 and other records matched with scores significantly lower
 - Patient ID assigned and record proceeds to TLC Plus

Pending: Patient Linkage

The screenshot displays the CRSP Plus software interface. On the left, a 'Pending List (238)' table shows a list of patients with columns for Last Name, First Name, and Dx Date. The entry for Brockman, Nitsa is highlighted in blue. Below the list, a red box labeled 'Potential Matches (1)' shows a match for Brockman, Nitsa Patient ID: 106828 with a Match Score of 116. The main area of the interface is divided into three panels, each showing a detailed record for a patient with Patient ID 106828:

- Pending-Facility:0010339999(00),AbsRef ID:4458:** Shows fields for Patient ID Number (0), Cancer Record Number (01), Patient Info (Name-Last: Brockman, Name-First: Nitsa, Name-Middle: D, Social Security Number: 302271458), Race (01 - White), and Birthplace (999 - NY - New York).
- Brockman,Nitsa, Patient ID: 106828:** Shows fields for Patient ID Number (106828), Patient Info (Name-Last: Brockman, Name-First: Nitsa, Name-Middle: D, Social Security Number: 308271458), Race (01 - White), and Birthplace (ZZ - Unknown if U.S.).
- Site:C447,DxDate:20070502,Seq:00:** Shows fields for Patient ID Number (106828), Tumor Record Number, Address at Dx (5479 THIRD LANE NW), City (KNOXVILLE), State (NY - New York), Postal Code (999999999), and various Census and Geocode data.

At the bottom left, there are options to 'Dispose Abstract As' (New Patient, New Tumor, Assign Sequence Number Central, New Facility, Void) and buttons for 'Save Disposition', 'TLC Plus', and 'Unlink'. The user name 'User: DOE' is visible at the bottom left corner.

CRSPPlus - (PendingAbstracts)

File Patients/Abstracts Extracts Administration Reports Windows Help

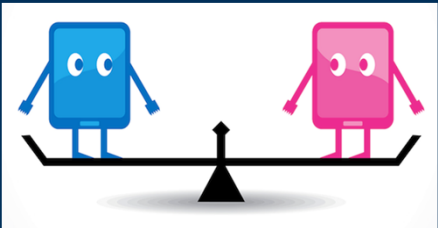
Suspend

Filter Pending List (238)

Pending-Facility:0010339999(00),AbsRef ID:4458 Brockman,Nitsa,Patient ID:106828 Site:C447,DxDate:20070502,Seq:00

Compare Abstract Text Compare Assign Patient ID Note Compare

Compare Results Function



Compare

Unmatched Items

Field Name	AbsRefID=4458	PatientID=106903
Patient ID Number	0	106828
Name--Alias	JOHNSON	
Social Security Nu...	302271458	308271458
Birthplace--State	NY	ZZ
Birthplace--Country	USA	ZZU
Date of Birth	19210323	19210324
Date of Last Contact	2014	20141105
Follow-Up Source	2	0

Matched Items

Field Name	AbsRefID=4458	PatientID=106903
Name--Last	Brockman	Brockman
Name--First	Nitsa	Nitsa
Name--Middle	D	D
Race 1	01	01
Race 2	88	88
Race 3	88	88
Race 4	88	88
Race 5	88	88

Un-Matched Only

Automated Tumor Linkage

- TLC Plus – automated tumor linkage process to determine if record can be linked to an existing tumor
- Involves matching of specific data items from incoming abstract against linked consolidated records
- **Data items used to determine Tumor Linkage:**

Primary Site
Laterality

Behavior
Diagnosis Date

Histologic Type
Reporting Facility

Site and Histology Pairs

- NAACCR Site and Histology Pair Tables
- Agreement Code Definitions
 - Pairs that correspond to written SEER rules for same site
 - Pairs that are a reasonable extension of SEER rules
 - Pairs that experience has shown are likely same but maybe handled differently by registries
 - Pairs that require special handling

Registry Plus Site Pairs

- Utilizes NAACCR Site Pair Table
- Assigned Match Strength 4 to indicate pair of codes often representing same tumor

ID	KEY	SITE_PAIR_LOW	SITE_PAIR_HIGH	IngLRRID	MatchStrength
889	C199C199	C199	C199	30	1
890	C199C209	C199	C209		4
891	C199C260	C199	C260		4
892	C199C268	C199	C268		4
893	C199C269	C199	C269		4

Automated Tumor Linkage

- Automated Tumor Linkage Logic Programmed Based on SEER MP/H Rules and SEER Solid Tumor Rules for the following Sites:
 - Colon
 - Rectosigmoid
 - Rectum
 - Prostate
 - Melanoma
 - Breast
 - Lung
- Manual Review Necessary if Information from Multiple Sources is Different

Sequence Number Central Assignment

- Automated calculation of Sequence Number Central
 - Based on Chronological Order of Diagnosis Date
- Re-sequencing of Remaining Tumors

Tumor Linkage Potential Dispositions

- **New Tumor:**
 - Tumor determined to be new primary, not currently on database
 - New Tumor record created and record proceeds to automated consolidation
- **Pending Tumor Linkage:**
 - Automated Tumor linkage not determined
 - Record sent to pending for manual tumor linkage
- **Consolidate:**
 - Tumor determined to be same primary
 - Record proceeds for automated consolidation

Pending: Tumor Linkage

The screenshot displays the CRSPPlus software interface for reviewing pending tumor linkages. The main window is titled 'Pending: Tumor Linkage' and shows a 'Pending List (1000)' on the left. The list includes columns for 'FirstName', 'DxDate', and 'PSite'. The patient 'Erwin' is selected, and a 'Pending Abstract Details' pop-up is visible for this patient, showing 'Status: (4) Pending Tumor Linkage'. Below the list, a 'Matched Patient' section shows a match for 'Aguiar, Erwin' with a score of 170. The main area is divided into three panels, each showing a detailed record for a patient with a pending linkage:

- Pending-Facility:001099999(00),AbsRef ID:21377**: Shows fields like 'Cancer Identificat...', 'Sequence Number-Central' (00), 'Date of Diagnosis' (2016), 'Primary Site' (C182), and 'Histology (S2-00) ICD-O-2'.
- Aguiar,Erwin, Patient ID: 111221**: Shows 'Patient Identificat...' (111221), 'Patient Info' (Name: Aguiar, M; Social Security: 299443514), 'Race' (White), and 'Follow-Up/Death' (Date: 2016).
- Site:C182, DxDate:2016, Seq:00**: Shows 'Patient Identificat...' (111221), 'Address at Dx' (2514 Second Parkway), 'Census' (Tract 2000), and 'Cancer Identificat...'.

At the bottom left, there are options to 'Dispose Abstract As' (New Patient, New Tumor, Assign Sequence Number Central, New Facility, Void) and buttons for 'Save Disposition', 'TLC Plus', and 'Unlink'. The user is identified as 'User: DOE'.

Pending: Tumor Linkage

CRSPPlus - [PendingAbstracts]

File Patients/Abstracts Extracts Administration Reports Windows Help

Compare

Unmatched Items

Field Name	AbsRefID=21377	Tumor Seq+00
Date Tumor Record ...		20180226

Matched Items

Field Name	AbsRefID=21377	Tumor Seq+00
Patient ID Number	111221	111221
Tumor Record Num...	01	01
Addr at DX-No & S...	2514 Second Park...	2514 Second Park...
Addr at DX-City	Montgomery	Montgomery
Addr at DX-State	NY	NY
Addr at DX-Postal ...	999999999	999999999
Country at DX	999	999

Matched Patient

Aguiar, Erwin Patient ID: 111221 Match Score: 170 - View

00 - C182 DxDate: 2016 MedRef ID: 111226

[A] Reporting Facility: 0010999999 AbsRef ID: 15670

Dispose Abstract As

New Patient New Tumor

Assign Sequence Number Central

New Facility Void

Save Disposition TLC Plus

User: DOE

Pending-Facility:001099999(00),AbsRef ID:21377

Aguiar,Erwin, Patient ID:111221

Site:C182,DxDate:2016,Seq:00

Compare

Field Name	Field Value
Patient Identificat...	
Patient ID Number	111221
Patient System ID-Hosp	00100899
Cancer Identificat...	
Tumor Record Number	01
Patient info	
Name-Last	Aguiar
Name-First	Erwin
Name-Middle	M
Name-Suffix	
Name-Alias	JOHNSON
Social Security Number	299443514
Race 1	01 - White
Race 2	88 - No further race do...
Race 3	88 - No further race do...
Race 4	88 - No further race do...
Race 5	88 - No further race do...
Spanish/Hispanic Origin	0 - Non-Spanish; non...
Computed Ethnicity Source	0 - No match run, 1994...
NHIA Derived Hisp Origin	
Race-NAPIII(Aderived API)	
IHS Link	
Birthplace	999
Birthplace-State	ZZ - Unknown if U.S. ...
Birthplace-Country	ZZU
Date of Birth	19260522
Date of Birth Flag	
Sex	1 - Male
Follow-Up/Death	
Date of Last Contact	2016
Date of Last Contact Flag	

Data Item Consolidation

- **TLC Plus** applies user-defined consolidation rules (TumorLinkageRules.mdb, tblConsolidationRules)
- Consolidation rules define how data from two or more linked records are evaluated to select 'best' value
- Application of consolidation rules can be automated, manual, or a combination
- If rules are not defined for a consolidated data item, the field value from the first abstract received will be maintained but can be manually updated.

Data Item Consolidation

- Consolidated record value is not considered
- Consolidation compares values from incoming record to all source records



Data Item Consolidation Potential Dispositions

- **Update:** All consolidation directives processed successfully
 - Consolidated record updated and incoming record disposed to database
- **Manual Review:** Not all consolidation directives completed successfully
 - Record sent to pending for manual data item consolidation
 - Values successfully determined through automated consolidation can be updated manually

Successful Consolidation Directives No Manual Review

Consolidation Log

Field Name: DateLastContact Incoming AbsRef ID 21377 Close

Selected Value 20170502

Consolidation Steps

ID	DateLastContact	Comment
Existing Patient ID: 111221	20170502	: Selected the remaining value: 20170502
Incoming AbsRef ID: 21377	20170502	: Tied for most complete date
AbsRef ID: 15670	20161102	: Tied for most complete date; Eliminated because 20161102 is not LatestDate

Directives

KnownOverUnknown:MostCompleteDate:LatestDate

Failed Consolidation Directives Manual Review Required

Consolidation Log

Field Name: Race1 Incoming AbsRef ID 21377 Close

Selected Value <Review>

Consolidation Steps

ID	Race1	Comment
Existing Patient ID: 111221	01	: Manual review because ambiguous values found for Race1
Incoming AbsRef ID: 21377	06	: Ambiguous since other value(s) found for Race1
AbsRef ID: 15670	07	: Ambiguous since other value(s) found for Race1

Directives

KnownOverUnknown:ManualIfAmbiguous

Update Abstracts in Consolidation/ Automated Re-Consolidation

- Abstracts (Pending abstract and associated abstracts) can be modified while working on Consolidation in .NET
 - No longer need to exit pending, remember patient identifier, search, and update in Interactive Case Update
- Once Modifications to Abstracts are Saved in Pending Consolidation, Automated Consolidation will Run
- Look-ups and picklists available in Pending Consolidation

Pending Consolidation

Patient ID: Sequence Number Central:

Patient ID: 110150
 00 - C343 DxDate: 20161210 MedRef ID: 110225
 [A] Reporting Facility: 0010999999 AbsRef ID: 14566
 [A] Reporting Facility: 0010999999 AbsRef ID: 20273

PatientID - 110150, Seq Num - 00, Incoming Abstract ID - 20273

Legend
■ Manual Review ■ New value same as existing value ■ New value different from existing value

Field Name	Existing Value	Incoming Value	New Consolidated
Cancer Identificat...			
Age at Diagnosis	100	100	100
Date of Diagnosis	20161210	20161210	20161210
Date of Diagnosis Flag			
Primary Site	C343	C343	C343
Laterality	1	1	1 - Right: origin of primary
Histology (92-00) ICD-O-2			
Behavior (92-00) ICD-O-2			
Histologic Type ICD-O-3	8010	8010	8010
Behavior Code ICD-O-3	3	3	3 - Malignant, primary site
Grade	9	9	9 - Grade or cell type n...
Grade Path Value			
Grade Path System			
Lymph-vascular Invasion	9	9	9 - Unknown/Indetermi...
ICD-O-3 Conversion Flag	0	0	0 - Morphology ICDO3 ...
Diagnostic Confirmation	7	7	7 - Radiography and/or...
Type Of Reporting Source	1	1	1 - Hosp. inpatient; Ma...
Casefinding Source			
Primary Payer at DX	64	64	64 - Medicare with Me...
Collaborative Sta...			
CS Tumor Size			

Facility:0010999999(00),AbsRef ID:20273,Seq:00

Save Abstract Abstract Text

Abstract updated. Please click Ok to run reconsolidation.

OK

Field Name	Field Value
Cancer Identificat...	
Sequence Number-Central	00
Date of Diagnosis	20161210
Date of Diagnosis Flag	
Primary Site	C343
Laterality	1 - Right: origin of primary
Histology (92-00) ICD-O-2	
Lymph-vascular Invasion	9 - Unknown/Indetermi...
ICD-O-3 Conversion Flag	0 - Morphology ICDO3 ...
Diagnostic Confirmation	7 - Radiography and/or...
Type Of Reporting Source	1 - Hosp. inpatient; Ma...
Casefinding Source	
Primary Payer at DX	64 - Medicare with Me...
Collaborative Sta...	
CS Tumor Size	030

Can the Directives be Modified?

- Yes, in the TumorLinkageRules.mdb, tblConsolidationRules table
- The order of the directives and directive strings can be modified to meet registry needs
- Directives can also be de-activated



Duplicate Check

- Comparison of Reporting Facility is completed for all incoming records linked to an existing patient and existing tumor
- If Reporting Facility codes differ, record is disposed to database
- If Reporting Facility codes are identical (duplicate), record is sent to pending



Duplicate Check Potential Dispositions

- **Add:** Facility record is added to the database
- **Void:** Facility record is voided and not included in the database
 - Record is sent to the Void section and can be retrieved if accidentally voided
- **Update:** Facility record is added to the database and user is forwarded to the Interactive Patient Update window to modify values/void the record

Collaborative Stage Algorithm

- The Collaborative Stage Algorithm runs through the `cstage.dll`
- Records processed successfully through the automated tumor linkage and consolidation but fail the Collaborative Stage Algorithm are sent to pending for review of CS items.

Collaborative Stage Recalculation

- CS Recalculation – Batch process to recalculate CS Version Latest on all applicable records in the database when new CS versions are implemented
- Uses cstage.dll
- Option to recalculate CS on tumor records only or on both abstracts and tumor records
- Reports are generated to provide listings of records failing CS Calculation

TNM7 Algorithm

- The TNM algorithm runs through the TNM7_Staging.dll
- Calculates NPCR Derived TNM Stage Group Data Items
- Records processed successfully through automated tumor linkage and consolidation but fail the TNM algorithm are sent to pending for review of TNM items.

Defaulting NPCR Derived Stg Grp

Site: C649, DxDate: 2016, Seq: 00

Field Name	Field Value
Derived SS2000-Flag	
SEER Summary S...	
SEER Summary Stage 1977	1 - Localized
SEER Summary Stage 2000	9 - Unstaged/unknown
TNM Stage	
Tumor Size Summary	999
TNM Clin T	c1
TNM Clin N	c0
TNM Clin M	c0
TNM Clin Stage Group	1
TNM Clin Descriptor	0 - None
TNM Path T	pX
TNM Path N	pX
TNM Path M	
TNM Path Stage Group	99
TNM Path Descriptor	0 - None
TNM Edition Number	07 - Seventh Edition (p...
NPCR Derived Clin Stg Grp	1
NPCR Derived Path Stg Grp	
Treatment	
Date 1st Crs RX CoC	2016
Date 1st Crs RX CoC Flag	
Date Initial RX SEER	

Site: C649, DxDate: 2016, Seq: 00

Field Name	Field Value
Derived SS2000-Flag	
SEER Summary S...	
SEER Summary Stage 1977	1 - Localized
SEER Summary Stage 2000	9 - Unstaged/unknown
TNM Stage	
Tumor Size Summary	999
TNM Clin T	c1
TNM Clin N	c0
TNM Clin M	c0
TNM Clin Stage Group	1
TNM Clin Descriptor	0 - None
TNM Path T	pX
TNM Path N	pX
TNM Path M	
TNM Path Stage Group	99
TNM Path Descriptor	0 - None
TNM Edition Number	07 - Seventh Edition (p...
NPCR Derived Clin Stg Grp	1
NPCR Derived Path Stg Grp	
Treatment	
Date 1st Crs RX CoC	2016
Date 1st Crs RX CoC Flag	
Date Initial RX SEER	

TNM7 Recalculation

- TNM7 Recalculation – Batch process to recalculate NPCR Derived Clin Stg Grp (3650) and NPCR Derived Path Stg Grp (3655) on all applicable records in the database when new TNM7 DLL versions are implemented
- Uses latest TNM_Staging.dll (TNM7)
- Option to recalculate TNM on tumor records only or on both abstracts and tumor records
- Reports are generated to provide listings of records failing TNM Calculation

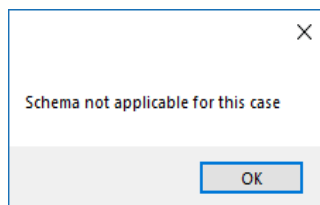
TNM8 Schema Selection

- Schema Selection to Calculate Schema ID and AJCC ID for Cases Diagnosed in 2018 or later
- Schema ID required for all records
 - Edits based on valid values according to Schema ID and AJCC ID
- Although AJCC ID not required by NPCR, AICC ID incorporated in TNM 8 DLL
- No Calculation of NPCR Derived TNM Stage Group Data Items for TNM8

The image shows two input field examples. The top one is labeled 'Input field' and has a red border with a red error message below it: 'This field cannot be empty.' The bottom one is labeled 'Valid input' and has a green border with a green checkmark icon to its right.

Schema Not Applicable

- Informational Message – Not an Application Error
 - Message returns from TNM 8 DLL indicating AJCC TNM 8 not applicable for site/histology combination
 - AJCC ID = XX for these scenarios



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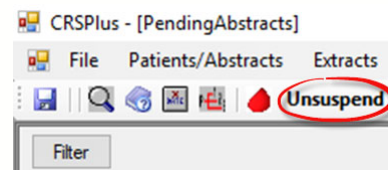
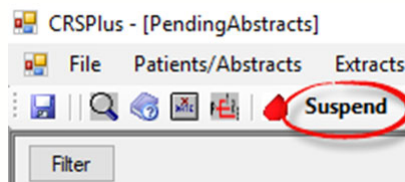
Edit Check

- NAACCR EDITS are run against the consolidated record
- Two edit sets necessary – one to run against the consolidated records and one to run against abstracts
 - Appropriate edit set is defaulted and automatically applied



Suspending Records in Pending

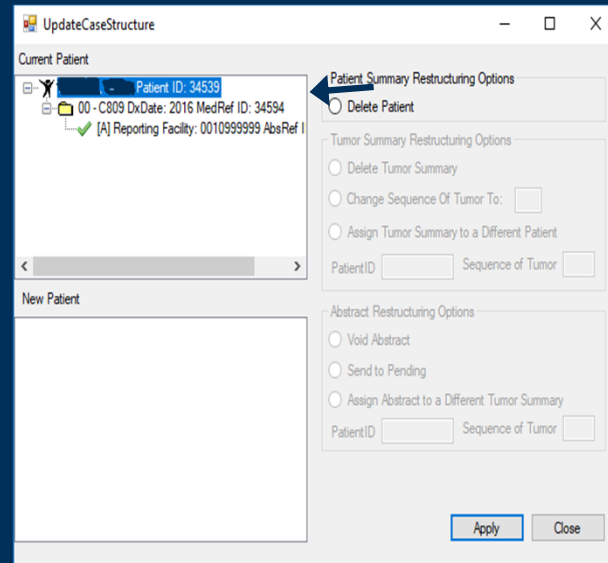
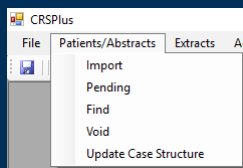
- Records can be suspended or held to staff for several reasons
 - Obtain additional information and dispose record at a later time
 - Training new staff, hold to manager for review



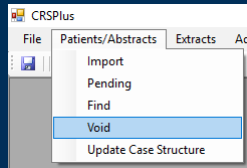
Edit Case Structure

- Case Structure Can Be Modified
 - Void Abstracts
 - Update Sequence Numbers
 - Unlink Records
 - Send Abstracts to Pending to Link Appropriately

Edit Case Structure



Voided Records



The screenshot shows the CRSPPlus application interface. The 'Void List (1)' table contains one record:

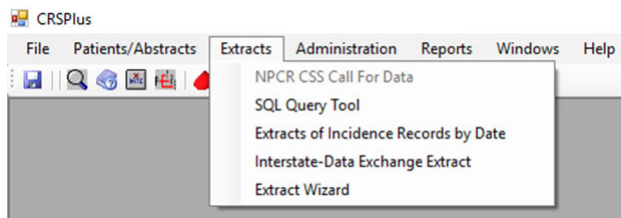
RecType	LastName	FirstName
A	Dallas	Genesis

The 'Voided - Facility:0010999999(00),AbsRef ID:20677,Seq:0' window is open, showing a 'Text' button circled in red. Below it is a table of field names and values:

Field Name	Field Value
Patient Identificat...	
Patient ID Number	0
Patient System ID-Hosp	00064383
Cancer Identificat...	
Tumor Record Number	01
Patient Info	
Name-Last	Dallas
Name-First	Genesis
Name-Middle	F
Name-Suffix	
Name-Alias	
Social Security Number	705673911
Race 1	99 - Unknown
Race 2	99 - Unknown
Race 3	99 - Unknown
Race 4	99 - Unknown
Race 5	99 - Unknown
Spanish/Hispanic Origin	9 - Unknown whether ...
Computed Ethnicity	0 - No match run, 1994...
Computed Ethnicity Source	0 - No match run, 1994...
NHIA Derived Hisp Origin	
Race-NAPIIA(derived API)	
IHS Link	
Birthplace	999
Birthplace-State	ZZ - Unknown if U.S. ...
Birthplace-Country	ZZU
Date of Birth	19140125
Date of Birth Flag	
Age at Diagnosis	102
Sex	1 - Male

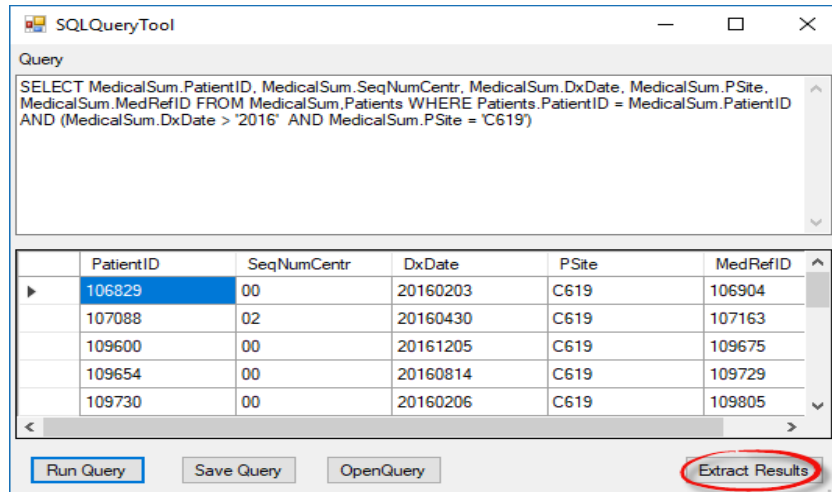
A 'Transfer to Pending' button is circled in red at the bottom of the window.

Standard Extracts



- NPCR CSS Submission
- Inter-state Data Exchange

SQL Query Tool



SQLQueryTool

Query

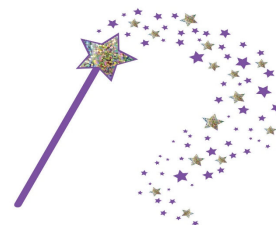
```
SELECT MedicalSum.PatientID, MedicalSum.SeqNumCentr, MedicalSum.DxDate, MedicalSum.PSite,
MedicalSum.MedRefID FROM MedicalSum.Patients WHERE Patients.PatientID = MedicalSum.PatientID
AND (MedicalSum.DxDate > '2016' AND MedicalSum.PSite = 'C619')
```

PatientID	SeqNumCentr	DxDate	PSite	MedRefID
106829	00	20160203	C619	106904
107088	02	20160430	C619	107163
109600	00	20161205	C619	109675
109654	00	20160814	C619	109729
109730	00	20160206	C619	109805

Run Query Save Query OpenQuery Extract Results

Extract Wizard

- Provides the ability to create customized queries in CRS Plus
 - Specify the record source (consolidated or abstracts) and output format (Type of NAACCR Record, fixed width)
 - Select fields to extract
 - Specify criteria
 - Specify the sort order



Reports - Current

Reports Windows Help

- Linkage and Consolidation Results Report
- Case Reports Received by Facility
- Frequency of Select Coded Data Items
- Import Case Management Report
- Current Statuses of Abstracts By Date Imported
- Tumors by Diagnosis Year and Behavior
- Daily Staff Pending Productivity Report
- Monthly Staff Pending Productivity Report
- NPCR Incidence Completeness Report
- Pending Record Status By DxYear
- Pending Records By DxYear DxMonth RecType

Report Date Range

Select year of diagnosis range for the report to

*** Leave blank for all years

Load Report Close

1 of 1 100% Find | Next

STATE CANCER REGISTRY

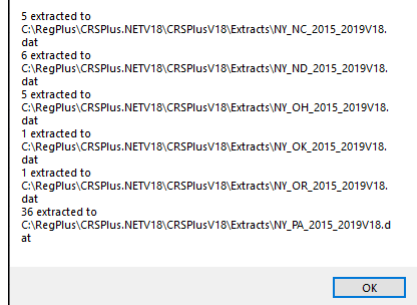
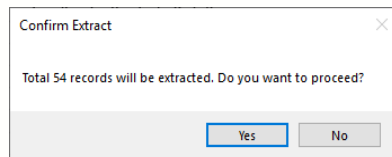
Number of Records in Pending by Diagnosis Year by Pending Status

Report Date: 04/05/2018

Pending Status Code	Pending Status Description	2016	2015	2014	2013	2012	2011	2010	DxYear Unk	Total
0	Edit Case Structure	4	0	0	0	0	0	2	0	6
1	Invalid Tumor Sequence	2515	4	153	96	52	8	19	0	2847
2	Patient Linkage	167	0	15	6	4	0	0	0	192
4	Tumor Linkage	2265	1	212	87	39	23	15	0	2642
8	Incomplete Consolidation	1	0	0	0	0	0	0	0	1
9	Duplicate Check	30	5	5	2	1	0	0	0	43
10	Failed Edits	1	0	0	0	0	0	0	0	1
11	Failed Collaborative Stage	0	0	0	0	0	0	0	0	0
12	Invalid Sequence New Tumor	4	0	2	0	0	0	0	0	6
13	Modification Record	1	0	0	0	0	0	0	0	1
16	TNM Calculation	1	0	0	0	0	0	0	0	1
18	TNM Stage Comparison	0	0	0	0	0	0	0	0	0
Total		4989	10	387	191	96	31	36	0	5740

Inter-state Data Exchange

- Multiple files can be created at the same time by selecting multiple receiving registries.
- Separate files created by Addr at Dx State
- Counts provided for each file created

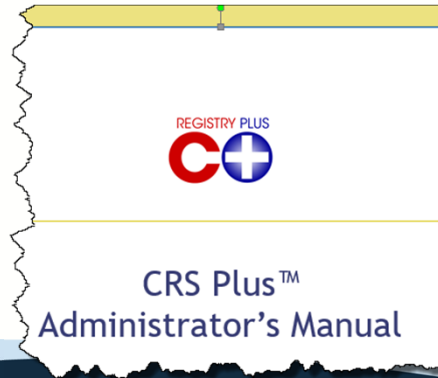
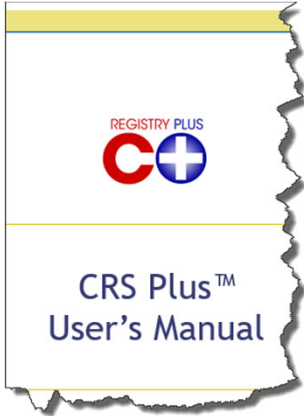


Registry Plus Users Group

- **Monthly Registry Plus Users Group (RPUG)**
 - Monthly teleconference meeting used to communicate Registry Plus software updates, discuss development plans with users of the applications, and gather feedback from users
 - Promotes exchange of software issues, successes, and ideas for implementation among users



CRS Plus Manuals



Thank you!

Go to the official federal source of cancer prevention information:

www.cdc.gov/cancer

cancerinformatics@cdc.gov

