



CliniComp, Intl.

CliniComp / EHR™
**Enterprise Common
Clinical Data Set & Web
API**
Adaptive Interoperability Platform

P/N: 250-70079 – Version C
Date: 03 Apr 2021

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Printed in the United States of America

REVISION HISTORY

LEVEL	DATE	REVISION DESCRIPTION	ORIGINATOR	REVISION
1.0	12-JUN-2020	Initial Version	M. Nater	A
2.0	10-JUL-2020	Updates to API functionality	M. Nater	B
3.0	03 Apr 2021	Cures Act update per April 5 th , 2021 requirement	J. Nagy	C

Contents

1	Overview	6
2	Restful Web CCDS Data API	7
3	Example CCDS Definition	8
3.1	CCDS Objects	8
3.2	CCDS Definition – Laboratory Values	9
3.3	Query Example.....	9
3.4	Sample Messages.....	10
3.4.1	Success Return Message.....	10
3.4.2	Failure Return Message.....	11
3.5	Lab Result CCDS Displayed in <i>CliniComp/EHR</i>	11
4	Login Control.....	12
4.1	Function Name.....	12
4.2	API Syntax	12
4.3	Login Exception Handling	12
4.3.1	Required Login Parameters	12
4.3.2	User Password Incorrect.....	12
4.3.3	Username Incorrect	13
4.4	Configurations	13
5	Library of CCDS Definitions	13
5.1	Function Name.....	13
5.2	API Syntax	13
5.3	Required and Optional Parameters	14
5.4	Date Range	14
5.4.1	Patient Level Data – Items Without a Date Range	14
5.4.2	Encounter Level Data – Items with a Date.....	14
5.4.3	Encounter Level Data – Items with a Date Range	15
5.5	Success Return Message.....	15
5.6	Record Structure in Query Return	16
5.7	Full Patient Query	23
5.8	Exception Handling	25
5.8.1	Invalid Webtoken	25
5.8.2	Incorrect CCDS Object	25
5.8.3	Incorrect Patient ID	25
5.8.4	Missing CCDS Object	26
5.8.5	Missing Patient ID.....	26
6	Terms of Use:	27
6.1	API Usage Terms & Conditions	27
6.2	Account and Registration	27
6.2.1	Accepting the Terms.....	27
6.2.2	Registration.....	27
6.3	Using Our APIs.....	28

	6.3.1 Your End-Users.....	28
6.4	Compliance with Law, Third-Party Rights, and Other CliniComp Terms of Service	28
	6.4.1 Permitted Access.....	28
	6.4.2 API Limitations.....	29
	6.4.3 Feedback.....	29
6.5	API Clients	29
	6.5.1 API Clients and Monitoring	29
	6.5.2 Security.....	30
	6.5.3 Ownership	30
6.6	Prohibitions and Confidentiality	30
	6.6.1 API Prohibitions	31
	6.6.2 Confidential Matters.....	31
6.7	Content	31
	6.7.1 Content Accessible Through Our APIs.....	31
	6.7.2 Prohibitions on Content	32
6.8	Brand Features; Attribution	32
	6.8.1 Brand Features	32
	6.8.2 Attribution	32
	6.8.3 Publicity.....	32
6.9	Termination.....	32
	6.9.1 Termination	32
	6.9.2 Your Obligations Post-Termination	33
6.10	Liability & Indemnification	33
	6.10.1 Limitation of Liability.....	33
	6.10.2 Indemnification	33

Preface

This document provides a description of the *CliniComp/EHRTM* Common Clinical Data Set (CCDS) Definition & Application Programming Interface (API).

DOCUMENT PURPOSE

This document provides an overview and roadmap to the *CliniComp/EHRTM* Common Clinical Data Set (CCDS) Definition & Application Programming Interface (API).

DOCUMENT AUDIENCE

This document is intended for personnel who are familiar with the *CliniComp/EHRTM* system and the interoperability of clinical data.

TERMS AND ACRONYMS

TERM	DEFINITION
ADAPTERS	Harmonize the variations of site-specific configuration
API	Application Programming Interface
CCDA	Consolidated Clinical Document Architecture
CCDS	Common Clinical Data Set, an object-oriented approach to abstract and normalize clinical data and provide a standardized data access layer
EMR	Electronic Medical Record
RESTFUL WEB API	An Application Programming Interface using the simple Representational State Transfer (REST) based communication protocol of web service.
SOA	Service Oriented Architecture
NATIVE DATA	Site specific underlying data

1 Overview

Real-world clinical data is inevitably non-uniform across multiple facilities and is not well structured for analytical purposes. *CliniComp/EHR™* Common Clinical Data Set (CCI-CCDS) uses an adaptive standardized approach to normalize clinical data and convert raw unstructured data into formats more suitable for analytics across disparate medical facilities. CCI-CCDS transparently consolidates clinical data across multiple facilities into a single consistent virtual patient view based on national coding standards (e.g., SNOMED CT, LOINC, ICD-9/ICD-10, etc.). No modification to the underlying data structure is necessary. Using CCI-CCDS, the hospital can perform broader analytics across the enterprise and deeper analytics tailored to an individual hospital.

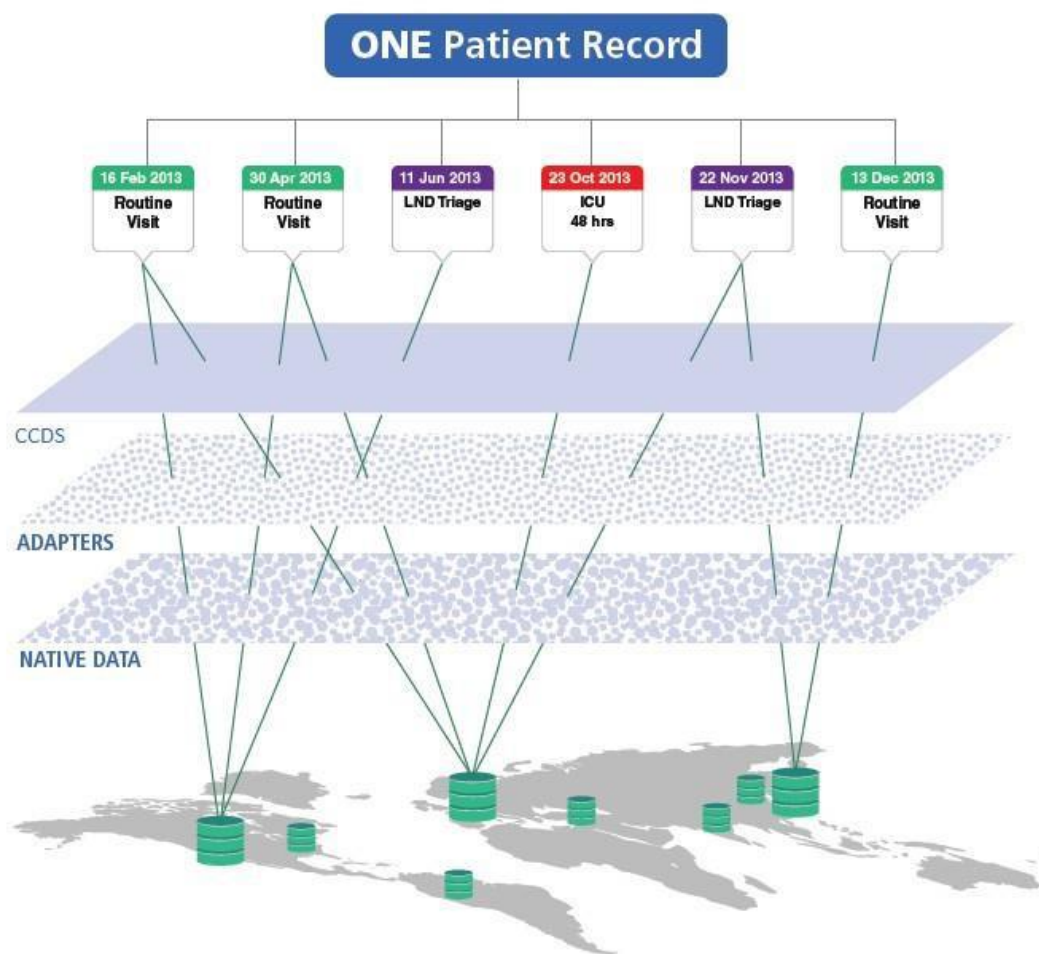
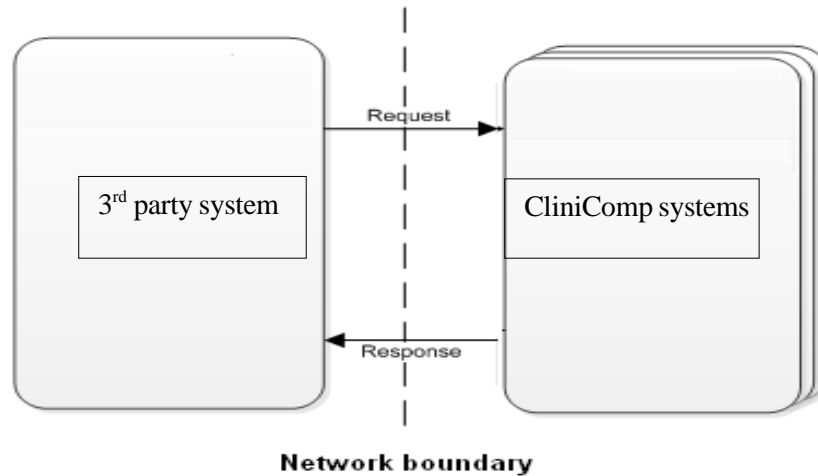


Figure 1 Patient Record

2 Restful Web CCDS Data API

Clinical data can be queried via the following secure web based **CCDS API**. (FIPS 140-2 compliant https)



Data Workflow

Known Requirements:

- **CCDS API** is restricted by the IP of the client machine
- Maximum queries allowed per minute based on the security environment.
- Maximum size of queried data per query (i.e. page size restriction)

3 Example CCDS Definition

The following sections present the **Laboratory Values CCDS** as an example to show how to define and query the data using a CCDS object.

3.1 CCDS Objects

CCDS Object Names supported:

Patient Name: **CCDS.Patient_Name**

Sex: **CCDS.Sex**

Date of Birth: **CCDS.Date_of_Birth**

Race: **CCDS.Race**

Ethnicity: **CCDS.Ethnicity**

Preferred Language: **CCDS.Preferred_Language**

Smoking Status: **CCDS.Smoking_Status**

Problems: **CCDS.Problems**

Medications: **CCDS.Medications**

Medication Allergies: **CCDS.Medication_Allergies**

Laboratory Tests: **CCDS.Laboratory_Tests**

Laboratory Values(s)/Result(s): **CCDS.Laboratory_Values**

Vital Signs: **CCDS.Vital_Signs**

Procedures: **CCDS.Procedures**

Care Team Member: **CCDS.Care_Team_Members**

Immunizations: **CCDS.Immunizations**

Implantable Device: **CCDS.Implantable_Device**

Goals: **CCDS.Goals**

Assessment and Plan of Treatment: **CCDS.Assessment_Treatment**

Health Concerns: **CCDS.Health_Concerns**

3.2 CCDS Definition – Laboratory Values

The following table defines the Laboratory Values CCDS:

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
LOINC Code	String	YES	LOINC Code	14074 "labresult_ID"
Name	String	YES	Lab results Name	12629 "labresult_name"
Value	String	YES	Lab results Value	12630 "labresult_value"
Unit	String	YES	Lab results Units	12631 "labresult_unit"
Range	String	YES	Lab results Range	12632 "labresult_range"
Observation Date Time	String	YES	Observation Date Time	12637 "labresult_extrainfo" (vdata)
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

Defined Laboratory Values CCDS

3.3 Query Example

The following URL is a query for the **Laboratory Values CCDS** which shows how to define and query the data using a **CCDS** object:

https://HOST.clinicomp.com/webframe/index.php/Api/getData?object=CCDS.Laboratory_Values&patid=16-322-16-3222&webtoken=36F2A7C4990A80B505EED9A2781C859BC2D0B0E0B364D7ADE76465A0CFCDB3F7&starttime=13Aug2016&endtime=13Sep2016

FIELD	VALUE
object	CliniComp Published CCDS objects, e.g., CCDS.Procedures, CCDS.Problems, etc.
patid	Medical Record Number
starttime	Start time of query range, e.g., 1600 15 Oct 2013. It is optional
endtime	End time of query range, e.g., 1600 16 Jan 2013. It is optional
webtoken	CCI token, for verification

3.4 Sample Messages

3.4.1 Success Return Message

```
{
  "success" : true,
  "total" : 2,
  "data" : [{
    "nit" : "1",
    "tkey" : "22:11 15 Dec 2010",
    "LOINC Code" : "8012-1",
    "Name" : "WBCB",
    "Value" : "11",
    "Unit" : "K/cu mm",
    "Range" : "4-13",
    "Observation Date Time" : "18 Feb 2010",
    "MRN" : "16-322-16-3222"
  }, {
    "nit" : "2",
    "tkey" : "22:15 15 Dec 2010",
    "LOINC Code" : "4566-3",
    "Name" : "RBC",
    "Value" : "3",
    "Unit" : "M/cu mm",
    "Range" : "4.3-5.9",
    "Observation Date Time" : "18 Feb 2010",
    "MRN" : "16-322-16-3222"
  }
]
```

3.4.2 Failure Return Message

```
{
  "success" : false,
  "total" : 0,
  "message" : "Patient not found: patid=16-322-16-32x2"
}
```

3.5 Lab Result CCDS Displayed in *CliniComp/EHR*

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04/28/2016 14:33

Eagle, John MD

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Sample Lab Result Displayed in *CliniComp/EHR*

4 Login Control

API queries must contain enough information to identify a patient and return an ID or other token that can be used by an application to subsequently execute requests for that patient's data.

4.1 Function Name

API/login

4.2 API Syntax

<https://HOST.clinicomp.com/webframe/index.php/logon/login?username=demo&password=123>

4.3 Login Exception Handling

4.3.1 Required Login Parameters

FIELD	TYPE	VALUE
username	String	User Name e.g. JSMITH2
password	String	Password e.g. abc\$123

Login Control Parameters

4.3.2 User Password Incorrect

```
{  
  "ccitoken" : "",  
  "message" : "Password is incorrect.",  
  "ret" : false,  
  "staffid" : -1,  
  "status" : "ERROR",  
  "success" : false,  
  "loginsuccess" : false  
}
```

4.3.3 Username Incorrect

A valid username is required. An invalid username will result in the following Failure Message:

```
{
  "ccitoken" : "",
  "message" : "Other unknown errors. Your userID may be incorrect.",
  "ret" : false,
  "staffid" : -1,

  "status" : "ERROR",
  "success" : false,
  "loginsuccess" : false
}
```

4.4 Configurations

A user account must be granted the CCDSAPI permission. No additional configurations are required to access the API.

5 Library of CCDS Definitions

CCI-CCDS is capable of defining a comprehensive Clinical Domain Concept per different clinical settings. The following are a set of representative CCDS' based on the ONC 2015 Edition CCDA requirement.

5.1 Function Name

API/getData

5.2 API Syntax

https://HOST.clinicomp.com/webframe/index.php/Api/getData?object=CCDS.Laboratory_Values&patientid=16-322-16-3222&webtoken=36F2A7C4990A80B505EED9A2781C859BC2D0B0E0B364D7ADE76465A0CFCDB3F7&starttime=13Aug2016&endtime=13Sep2016

5.3 Required and Optional Parameters

FIELD	VALUE
object	CliniComp Published CCDS objects, e.g., CCDS.Procedures, CCDS.Problems, etc.
patid	Medical Record Number
starttime	Start time of query range, e.g., 1600 15 Oct 2013. It is optional
endtime	End time of query range, e.g., 1600 16 Jan 2013. It is optional
webtoken	CCI token, for verification. Acquired from the return of login function

CCDS Query Parameters

5.4 Date Range

5.4.1 Patient Level Data – Items Without a Date Range

The admit items are recorded at admit time (registration for inpatient visits) or visit time (for ambulatory visits). There is not an end date associated with Patient-Level Data. These items do not have a date range and can be queried by searching any date or date parameter on or after the initial admit or visit time.

CCDS.Patient_Name

CCDS.Sex

CCDS.Date_of_Birth

CCDS.Race

CCDS.Ethnicity

CCDS.Preferred_Language

CCDS.Medication_Allergies

5.4.2 Encounter Level Data – Items with a Date

The following items have associated dates that fall within the date range of encounter start and end times. The starttime/endtime parameters can be used for querying a range of dates. To return these items in a query, the date range selected should be greater than or equal to the starttime and less than or equal to the endtime of the associated encounter. To return data for an exact date/time, specify the same date/time in "starttime" and "endtime."

CCDS.Vital_Signs

CCDS.Procedures

CCDS.Care_Team_Members

CCDS.Goals

CCDS.Assessment_Treatment

CCDS.Health_Concerns

CCDS.Laboratory_Tests

CCDS.Laboratory_Values

5.4.3 Encounter Level Data – Items with a Date Range

The following items have onset/start times and could also have an end time. The starttime/endtime parameters can be used for querying a range of dates. To return these items in a query, the date range selected should be greater than or equal to the start/onset time and less than or equal to the endtime of the associated encounter. To return data for an exact date/time, specify the same date/time in "starttime" and "endtime." If the item does not have an end time, the item will be returned in any query that is on or after the item onset/start time.

CCDS.Smoking_Status

CCDS.Problems

CCDS.Implantable_Device

CCDS.Immunizations

CCDS.Medications

5.5 Success Return Message

The following is an example of a success return message.

```
{
  "success" : true,
  "total" : 2,
  "data" : [{
    "nit" : "1",
    "tkey" : "22:11 15 Dec 2010",
    "LOINC Code" : "8012-1",
    "Name" : "WBCB",
    "Value" : "11",
    "Unit" : "K\cu mm",
    "Range" : "4-13",
    "Observation Date Time" : "18 Feb 2010",
    "MRN" : "16-322-16-3222"
    "nit" : "2",
    "tkey" : "22:15 15 Dec 2010",
    "LOINC Code" : "4566-3",
    "Name" : "RBC",
    "Value" : "3",
    "Unit" : "M\cu mm",
    "Range" : "4.3-5.9",
    "Observation Date Time" : "18 Feb 2010",
    ..... "MRN" : "16-322-16-3222"
```

As seen in the example above, the success message is a JSON object contains the following elements:

NAME	TYPE	NULLABLE	DESCRIPTION
success	String	NO	Patient name
total	Number	NO	Total number of query results
data	Array	NO	Query results

CCDS Query Success Return

Each member of array "data" is a record. The content of a record is decided by "object" parameter in CCDS query. The record structure of each CCDS object is listed in Chapter 5.4.

5.6 Record Structure in Query Return

CCDS Patient Name

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Patient Name	String	YES	Patient name	0517 "PatientName.adm"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
tkey	String	NO	Key in date format	N/A

CCDS Sex

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Sex	String	YES	Gender	0529 "Sex.adm"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
tkey	String	NO	Key in date format	N/A

CCDS Date of Birth

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Date of Birth	String	YES	Date of birth	0519 "BirthDate.adm"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
tkey	String	NO	Key in date format	N/A

CCDS Race

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Race	String	YES	Race	0962 "Race.adm" or 19966 "Race.adm.lg"
Secondary Race	String	YES	Secondary Race	19685 "SecondaryRace.adm"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
tkey	String	NO	Key in date format	N/A

CCDS Ethnicity

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Ethnic Background	String	YES	Ethnic Background	15288 "Ethnic Background"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
tkey	String	NO	Key in date format	N/A

CCDS Preferred Language

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Preferred Language	String	YES	Primary Language	1531 "Language.adm" or 19967 "Language.adm.lg"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
Tkey	String	NO	Key in date format	N/A

CCDS Smoking Status

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
ElementDescription	String	NO	Specify a current or historical smoking	6740 (null or blank for current, otherwise historical)
Description	String	YES	General description	4770 "Tobacco"
StartDate	String	YES	Start date	21283 SmokeStart
EndDate	String	YES	End date	6740 "SmokeDT"
SNOMED-CT	String	YES	SNOMED-CT	19850 "Smoking Status Code"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Problems

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Problem Name	String	YES	Problem Name	20925 Probs_name.MGDB
Onset Date	String	YES	Onset Date	20976 "CQM ProblemOnset.MGDB"
Resolved Date	String	YES	Resolved Date	20977 "CQM ProblemResolve.MGDB"
Diagnose Date	String	YES	Diagnose Date	20933 Probs_diagnosedDT.MGDB
SNOMED-CT	String	YES	SNOMED-CT	20928 Probs SNOMEDcode.MGDB
Status	String	YES	Status	20929 Probs_status.MGDB
AcuteChronic	String	YES	Acute Chronic	20930 Probs_severity.MGDB
ICD9 Code	String	YES	ICD9 Code	20926 Probs icd9code.MGDB
MRN	String	NO	MRN of patient	0518 PatientSSN.adm
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Medication

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
RxNorm	String	YES	RxNorm Code	19079 meds_flow_rxnorm
MedicationName	String	YES	Medication Name	2225 meds_flow_definition
StartDate	String	YES	Start Date	2225 meds_flow_definition
EndDate	String	YES	End Date	2225 meds_flow_definition
Route	String	YES	Route	2228 meds_flow_route
Frequency	String	YES	Frequency	2226 meds_flow_frequency
Dose	String	YES	Dose and unit	2229 meds_flow_dose
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"

CCDS Medication Allergies

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Type	String	YES	Allergy type	11482 11487 11492 11497 11502 11507 11512 11517 11522 11527 11532 11537 11568 11573 11578 11583 11588 11593 11598 11603
Name	String	YES	Allergy name	11483 11488 11493 11498 11503 11508 11513 11518 11523 11528 11533 11538 11569 11574 11579 11584 11589 11594 11599 11604 526 6089 11482 11483 11484 11485 11486 13404 11487 11488 11489 11490 11491 13405 11492 11493 11494 11495 11496 13406 11497 11498 11499 11500 11501 13407 11502 11503 11504 11505 11506 13408 11507 11508 11509 11510 11511 13409 11512 11513 11514 11515 11516 13410 11517 11518 11519 11520 11521 13411 11522 11523 11524 11525 11526 13412 11527 11528 11529 11530 11531 13413 11532 11533 11534 11535 11536 13414 11537 11538 11539 11540 11541 13415 11568 11569 11570 11571 11572 13416 11573 11574 11575 11576 11577 13417 11578 11579 11580 11581 11582 13418 11583 11584 11585 11586 11587 13419 11588 11589 11590 11591 11592 13420 11593 11594 11595 11596 11597 13421 11598 11599 11600 11601 11602 13422 11603 11604 11605 11606 11607 13423
OnsetDate	String	YES	Allergy onset date	Observation time of 11486 11491 11496 11501 11506 11511 11516 11521 11526 11531 11536 11541 11572 11577 11582 11587 11592 11597 11602 11607 6089
Symptom	String	YES	Symptoms	11485 11490 11495 11500 11505 11510 11515 11520 11525 11530 11535 11540 11571 11576 11581 11586 11591 11596 11601 11606 6089
Severity	String	YES	Severity	11484 11489 11494 11499 11504 11509 11514 11519 11524 11529 11534 11539
Description	String	YES	Allergy description	6089 (vdata)
algvld	String	YES	Allergy id	6089 (vdata)
RxNorm	String	YES	RxNorm code	6089 (vdata)
Inactive	String	YES	Inactive status	6089 (vdata)

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
MRN	String	NO	MRN of patient	0518 PatientSSN.adm

CCDS Laboratory Tests

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Test Name	String	YES	Test Name	12637 "labresult_extrainfo" (vdata)
Test Source	String	YES	Test Source	12637 "labresult_extrainfo" (vdata)
Observation Date Time	String	YES	Observation Date Time	12637 "labresult_extrainfo" (vdata)
Laboratory Name	String	YES	Laboratory Name	21108 "labresult_laboratory" (vdata)
Laboratory Address	String	YES	Laboratory Address	21108 "labresult_laboratory" (vdata)
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A

CCDS Laboratory Values

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
LOINC Code	String	YES	LOINC Code	14074 "labresult_ID"
Name	String	YES	Lab results Name	12629 "labresult_name"
Value	String	YES	Lab results Value	12630 "labresult_value"
Unit	String	YES	Lab results Units	12631 "labresult_unit"
Range	String	YES	Lab results Range	12632 "labresult_range"
Observation Date Time	String	YES	Observation Date Time	12637 "labresult_extrainfo" (vdata)
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Vital Signs

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Vitals Name	String	NO	Vitals Name	N/A
Timing Information	String	NO	Key in date format	N/A
Value	String	YES	Value	0096, 0097, 0276, 0275, 0159, 0270, 0012, 0278, 0165
Unit	String	NO	Unit	N/A
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
tkey	String	NO	Key in date format	N/A

CCDS Implantable Device

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
UDI	String	YES	UDI	27836 "ImplantableDeviceUDI"
AssigningAuthority	String	NO	AssigningAuthority	N/A
SNOMED-CT	String	YES	SNOMED-CT	27837 "ImplantableDeviceSNOMED"
Device Name	String	YES	Device Name	27834 "GMDN PT"
Device ID	String	YES	Device ID	27841 "ImplantableDeviceHTCP"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Procedures

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Procedure Name	String	YES	Procedure Name	19074 "procds_name.MGDB"
Date Procedure Performed	String	YES	Date Procedure Performed	19078 "procds_dateperformed.MGDB"
Status	String	YES	Status	19077 "procds_status.MGDB"
Target Site	String	YES	Target Site	19877 "procds_targetsite.MGDB"
CCI Code	String	YES	CCI Code	19076 "procds_ccicode.MGDB"
ICD9 Code	String	YES	ICD9 Code	19075 "procds_icd9code.MGDB"
SNOMED-CT	String	YES	SNOMED-CT	19895 "procds_SNOMEDcode.MGDB"
MRN	String	NO	MRN of patient	0518 PatientSSN.adm
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Care Team Members

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Followup Team	String	YES	Followup Team	19888 "FollowupTeam.MGDB"
Facility	String	YES	Facility	19889 "FollowupFacility.MGDB"
Address	String	YES	Address	19890 "FollowupFacilAddr.MGDB"
Phone	String	YES	Phone	19891 "FollowupFacilPhone.MGDB"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Immunizations

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
CVX Code	String	YES	CVX Code	19126 "CVX Code.MGDB"
Vaccine Name	String	YES	CPT Description	19125 "CPT Description.MGDB"
Vaccine Admin Date	String	YES	Vaccine Admin Date	20213 "VaccineAdminDate.MGDB"
Immunizations Status	String	YES	Immunizations Status	26032 "Immunizations Status.MGDB"
Lot Number	String	YES	Lot Number	19130 "Vaccine Lot Number.MGDB"
Manufacturer Name	String	YES	Manufacturer Name	19131 "Manufacturer Name.MGDB"
Additional Notes	String	YES	Additional Notes	19998 "Vaccine Admin Note.MGDB"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Health Concerns

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Health Concerns	String	YES	Health Concerns	27889 "HealthConcerns.MGDB"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Assessment Treatment

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Assessment	String	YES	Assessment	27888 "Assessment.MGDB"
Treatment	String	YES	Treatment	27890 "Treatment.MGDB"
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A
tkey	String	NO	Key in date format	N/A

CCDS Goals

NAME	TYPE	NULLABLE	DESCRIPTION	EHR MAJOR IT
Care Plan Goal	String	YES	Care Plan Goal	19924 CarePlanGoal.MGDB
Care Plan Instructions	String	YES	Care Plan Instructions	19925 CarePlanInst.MGDB
Care Plan Code	String	YES	Care Plan Code	19926 CarePlanCode.MGDB
Care Plan System	String	YES	Care Plan System	19927 CarePlanSystem.MGDB
MRN	String	NO	MRN of patient	0518 "PatientSSN.adm"
nit	String	NO	Minor IT	N/A
key	String	NO	Key in date format	N/A

5.7 Full Patient Query

To return full patient query results, the date parameter selected needs to include dates for which the patient was admitted or had an ambulatory encounter. For example, the starttime must fall before admit/visit time or during the encounter. The endtime must be after the admit/visit time. To select all data for a single date/time – enter the same starttime and endtime.

Full Patient query returns all data of the patient. The object field is set to “**CCDS.AllData.**”

FIELD	VALUE
object	CCDS.AllData
patid	Medical Record Number
webtoken	CCI token, for verification
getXml	Set to “ true ” for xml document, other value for html page

Field of full patient query

Below is an example of successful return (HTML).

Patient Health Information

Patient Demographics

Patient Name	Patient MRN	Sex	Date Of Birth	Race	Secondary Race	Ethnicity	Preferred Language
Alice Jones Newman	T16323AMB112	F	05/01/1970	White	White European	Not Hispanic or Latino	English

Referring or Transitioning Providers Name

Name	Address	Telephone
Dr Seven	2472, Rocky place, Beaverton, OR-97006	555-555-1002

Office Contact Information

Name	Address	Telephone
Community Health and Hospitals	2472, Rocky place, Beaverton, OR-97006	555-555-1002

Smoking Status

Smoking Status	SNOMED-CT	Start
Current every day	449868002	06/22/2015

Problems

Problem Name	SNOMED-CT	Problem Start Date	Problem Status
Essential hypertension (disorder)	59621000	10/05/2011	Active
Severe Hypothyroidism (Disorder)	83986005	12/31/2006	Active
Chronic rejection of renal transplant (disorder)	236578006	12/31/2011	Active
Fever (finding)	386661006	06/22/2015	Active
Overweight (finding)	238131007	12/31/2006	Inactive

Medications

Name	DOSE	Route	Frequency	Start Date	Status	RxNorm Code
Ceftriaxone 100 MG/ML	1 Unit	Injectable	Two times daily	06/22/2015	Dced	309090
Tylenol 500mg	1 Unit	ORAL	As needed	06/22/2015	Active	209459
Aranesp 0.5 MG/ML	1 Unit	Injectable	Once a week	06/22/2015	Active	731241

Example of successful return of html page

Below is an example of successful return (XML):

```

1357, Amber Dr Beaverton OR 97006 Alice Jones Newman Alicia Jones Newman 2472, Rocky place Beaverton OR 97006 Tracy Davis Community Health and Hospitals 2472, Rocky place Beaverton OR 97006
2472, Rocky place Beaverton OR 97006 Dr Davis 2472, Rocky place Beaverton OR 97006 Dr Davis Dr Davis
Substance Reaction Severity Status
Penicillins Hives MODERATE active
Ampicillin Hives MODERATE active
Medication Directions Start Date
Ceftriaxone 100 MG/ML Two times daily 06/22/2015
Tylenol 500mg As needed 06/22/2015
Aranesp 0.5 MG/ML Once a week 06/22/2015
Because of the high fever noticed and suspected Anemia.
Essential hypertension (disorder) Severe Hypothyroidism (Disorder) Chronic rejection of renal transplant (disorder) Fever (finding) Overweight (finding)
Encounter Diagnosis Encounter Code Encounter CodeSystem Date Status
Fever-Finding 386661006 SNOMED-CT 06/22/2015
Encounter Diagnosis Encounter Code Encounter CodeSystem Date Status
Fever-Finding 386661006 SNOMED-CT 06/22/2015
Encounter Diagnosis Encounter Code Encounter CodeSystem Date Status
Fever-Finding 386661006 SNOMED-CT 06/22/2015
Encounter Diagnosis Encounter Code Encounter CodeSystem Date Status
Fever-Finding 386661006 SNOMED-CT 06/22/2015
Procedure Date
Nebulizer Therapy 06/22/2015
Introduction of cardiac pacemaker system via vein 10/05/2011
Implanted Area UDI
Cardiac resynchronization therapy implantable defibrillator Right Abdomen (01)00643169007222(17)160128(21)BLC200461H
Vitals Date Value
Body Temperature 06/22/2015 38.0Celsius
Respiratory Rate 06/22/2015 18/min
O2 % BldC Oximetry 06/22/2015 95%
Inhaled Oxygen Concentration 06/22/2015 36
Heart Rate 06/22/2015 80/min
Blood Pressure Diastolic 06/22/2015 88mm[Hg]
Blood Pressure Systolic 06/22/2015 145mm[Hg]

```

Example of successful return of xml document

5.8 Exception Handling

5.8.1 Invalid Webtoken

```
{  
    "success" : false,  
    "total" : 0,  
    "message" : "Invalid webtoken."  
}
```

5.8.2 Incorrect CCDS Object

1. Handling method
2. No data return and show error
3. Return

```
{  
    "success" : false,  
    "total" : 0,  
    "data" : [],  
    "message" : "Query error."  
}
```

5.8.3 Incorrect Patient ID

1. Handling method
2. No data return and show error
3. Return

```
{  
    "success" : false,  
    "total" : 0,  
    "message" : "Patient not found: patid=xxx"  
}
```

5.8.4 Missing CCDS Object

1. Handling method
2. No data return and show error
3. Return

```
{  
    "success" : false,  
    "total" : 0,  
    "message" : "The requested object name is empty."  
}
```

5.8.5 Missing Patient ID

1. Handling method
2. No data return and show error
3. Return

```
{  
    "success" : false,  
    "total" : 0,  
    "message" : "patid is empty."  
}
```

Query with non-existed patid:

```
{  
    "success" : false,  
    "total" : 0,  
    "message" : "Patient not found: patid=xxx"  
}
```

6 Terms of Use

6.1 API Usage Terms & Conditions

By accessing or using our APIs, you are agreeing to the terms below. If there is a conflict between these terms and additional terms provided by us, the additional terms will control for that conflict. Collectively, we refer to the terms below, any additional terms, terms within the accompanying API documentation, and any applicable policies and guidelines as the "Terms." You agree to comply with the Terms and that the Terms control your relationship with us. So please read all the Terms carefully.

Under the Terms (please refer to 45 CFR § 170.404 overall with notes below referencing specific sections of the regulation), "**CliniComp**" means CliniComp International, Inc., a Delaware corporation with its principal place of business at 9655 Towne Centre Drive, San Diego, California, U.S.A. We may refer to "CliniComp" as "we", "our", or "us" in the Terms. Except as exigent circumstances require, prior to making changes to our certified API technology or to the terms and conditions thereof, we will provide notice and a reasonable opportunity for API Information Sources and API Users to update their applications to preserve compatibility with our certified API technology and to comply with applicable terms and conditions (section (a) 4 (iii)).

6.2 Account and Registration

6.2.1 Accepting the Terms

You may not use the APIs and may not accept the Terms if (a) you are not of legal age to form a binding contract with CliniComp, or (b) you are a person barred from using or receiving the APIs under the applicable laws of the United States or other countries including the country in which you are resident or from which you use the APIs.

6.2.2 Registration

In order to access certain APIs you will be required to comply with the API Terms of Use (see [Appendix](#)) and provide certain information (such as identification or contact details) as part of the registration process for the APIs, or as part of your continued use of the APIs. The registration information given to CliniComp will remain up to date, and you agree to inform CliniComp promptly of any updates. Registration documentation will be used to verify the authenticity of API users (see (section (a) (2) (ii) (A) (5) and (b) (1)). In order to register, a letter needs to be sent to CliniComp addressed as follows:

CliniComp, Intl
Attention: Marketing Department
9655 Towne Centre Drive
San Diego 92121

6.2.3 Fees

There are currently no fees associated with the use of our APIs. CliniComp reserves the right to implement permitted fees in the future, including costs associated with development, deployment, and upgrades; usage costs; and value add services (see (section (a) (2) (ii) (A))). Detailed records of these fees would be kept, including the methodologies for how to calculate the fees and specific costs to which such fees are attributed (see (section (a) (3) (i) (A) and (C))).

CliniComp reserves the right to charge permitted fees, if required, to be discussed on a case by case basis and in accordance with § 171.302.

CliniComp will not charge any fees prohibited by the Office of the National Coordinator for Health Information Technology (ONC), including:

- costs associated with intangible assets other than actual development or acquisition of such assets;
- opportunity costs unrelated to the access, exchange, or use of electronic health information; or
- costs that led to the creation of intellectual property if the actor charged a royalty for that intellectual property pursuant to § 171.303 and that royalty included the development costs for the creation of the intellectual property.

6.3 Using Our APIs

6.3.1 Your End-Users

You will require your end-users to comply with (and not knowingly enable them to violate) applicable law, regulation, and the Terms.

6.4 Compliance with Law, Third-Party Rights, and Other CliniComp Terms of Service

You will comply with all applicable law, regulations, and third-party rights (including without limitation laws regarding the import or export of data or software, privacy, and local laws). You will not use the APIs to encourage or promote illegal activity or violation of third-party rights. You will not violate any other terms of service with CliniComp (or its affiliates).

6.4.1 Permitted Access

Openness and pro-competitive conditions: Upon registering, CliniComp will grant an API Information Source the independent ability to permit an API User to interact with the certified API technology deployed by the API Information Source (see (section (a) (4)).

CliniComp will grant all rights that may be reasonably necessary to access and use our API technology in a production environment; develop products and services that are designed to interact with our API; and market, offer, and distribute products and services associated with our API. We agree to provide all support and other services reasonably necessary to enable the effective development and use of certified API technology by in production environments and to make reasonable efforts to maintain the compatibility of our certified API technology to avoid disruption of its use in production environments (see (section (a) (4) (ii)).

CliniComp will provide their certified API technology to an API Information Source on terms that are no less favorable than what CliniComp provides itself and its own customers, suppliers, partners, and other persons with whom CliniComp has a business relationship. CliniComp will not condition the receipt of the aforementioned rights on (see (section (a) (4) (ii) (B)):

- receiving a fee, including not limited to a license fee, royalty, or revenue-sharing arrangement;
- agreeing to not compete with the Certified API developer in any product, service, or market;
- agreeing to deal exclusively with the Certified API Developer in any product, service, or market;

- obtaining additional licenses, products, or services that are not related to or can be unbundled from our API;
- licensing, granting, assigning, or transferring any intellectual property to CliniComp;
- meeting any CliniComp-specific testing or certification requirements; or
- providing CliniComp or their API technology with reciprocal access to application data.

You will only access (or attempt to access) an API by the means described in the documentation of that API. If we assign you developer credentials (e.g., client IDs), you must use them with the applicable APIs. You will not misrepresent or mask either your identity or your API Client's identity when using the APIs or developer accounts.

We agree to provide access to our certified API technology in a non-discriminatory fashion, including (see section (a) (4) (i)):

- providing the API technology on terms that are no less favorable than those provided to ourselves, our customers, suppliers, partners, and other persons with whom we have a business relationship;
- basing our API terms on objective and verifiable criteria that are uniformly applied to all substantially similar or similarly situated classes of persons and requests; or
- not offering different terms or services based on whether a competitive relationship exists or would be created or on the revenue or other value that another party may receive from using the API technology.

6.4.2 API Limitations

CliniComp sets and enforces limits on your use of the APIs (e.g., limiting the number of API requests that you may make or the number of users you may serve), in our sole discretion. You agree to and will not attempt to circumvent such limitations documented with each API. If you would like to use any API beyond these limits, you must obtain CliniComp's express consent (and CliniComp may decline such request or condition acceptance on your agreement to additional terms and/or charges for that use). To seek such approval, contact the relevant CliniComp API team for information (CliniComp Support at 800-350-8202. Contact CliniComp, Intl. by mail at 9655 Towne Centre Dr, San Diego, CA 92121.).

6.4.3 Feedback

If you provide feedback or suggestions about our APIs, then we (and those we allow) may use such information without obligation to you.

6.5 API Clients

6.5.1 API Clients and Monitoring

The APIs are designed to help you enhance CliniComp's client applications. YOU AGREE THAT CLINICOMP MAY MONITOR USE OF THE APIS TO ENSURE QUALITY, IMPROVE CLINICOMP PRODUCTS AND SERVICES, AND VERIFY YOUR COMPLIANCE WITH THE TERMS. This

monitoring may include CliniComp accessing and using your API Client to identify security issues that could affect CliniComp or its users. You will not interfere with this monitoring. CliniComp may use any technical means to overcome such interference. CliniComp may suspend access to the APIs by you or your API Client without notice if we reasonably believe that you are in violation of the Terms.

6.5.2 Security

You will use commercially reasonable efforts to protect user information collected by your API Client, including personally identifiable information ("PII"), from unauthorized access or use and will promptly report to your users any unauthorized access or use of such information to the extent required by applicable law.

6.5.3 Ownership

CliniComp does not acquire ownership rights of API Clients information, and by using our APIs, you do not acquire ownership of any rights in our APIs or the content that is accessed through our APIs.

6.6 Prohibitions and Confidentiality

6.6.1 API Prohibitions

When using the APIs, you may not (or allow those acting on your behalf to):

1. Sublicense an API for use by a third party. Consequently, you will not create an API Client that functions substantially the same as the APIs and offer it for use by third parties.
2. Perform an action with the intent of introducing to CliniComp products and services any viruses, worms, defects, Trojan horses, malware, or any items of a destructive nature.
3. Defame, abuse, harass, stalk, or threaten others.
4. Interfere with, overburden, or disrupt the APIs or the servers or networks providing the APIs.
5. Promote or facilitate unlawful online gambling or disruptive commercial messages or advertisements.
6. Remove, obscure, or alter any CliniComp terms of service or any links to or notices of those terms.

Unless otherwise specified in writing by us, CliniComp does not intend use of the APIs to create obligations under the Health Insurance Portability and Accountability Act, as amended ("HIPAA"), and makes no representations that the APIs satisfy HIPAA requirements. If you are (or become) a "covered entity" or "business associate" as defined in HIPAA, you will not use the APIs for any purpose or in any manner involving transmitting protected health information to CliniComp unless you have received prior written consent to such use from us.

6.6.2 Confidential Matters

1. Developer credentials (such as passwords, keys, and client IDs) are intended to be used by you and identify your API Client. You will keep your credentials confidential and make reasonable efforts to prevent and discourage other API Clients from using your credentials. Developer credentials may not be embedded in open source projects.
2. Our communications to you and our APIs may contain CliniComp confidential information. CliniComp confidential information includes any materials, communications, and information that are marked confidential or that would normally be considered confidential under the circumstances. If you receive any such information, then you will not disclose it to any third party without our prior written consent. CliniComp confidential information does not include information that you independently developed, that was rightfully given to you by a third party without confidentiality obligation, or that becomes public through no fault of your own.

6.7 Content

6.7.1 Content Accessible Through Our APIs

Our APIs contain some third-party content (such as text, images, videos, audio, or software). This content is the sole responsibility of the person that makes it available. We may sometimes review content to determine whether it is illegal or violates our policies or the Terms, and we may remove or refuse to display content. Finally, content accessible through our APIs may be subject to intellectual property rights or additional licensing requirements, and, if so, you may not use it unless you are licensed to do so by the owner of that content or are otherwise permitted by law. Your access to the content provided by the API may be restricted, limited, or filtered in accordance with applicable law, regulation, and policy.

6.7.2 Prohibitions on Content

Unless expressly permitted by the content owner or by applicable law, you will not, and will not permit your end users or others acting on your behalf to, do the following with content returned from the APIs:

1. Scrape, build databases, or otherwise create permanent copies of such content, or keep cached copies longer than permitted by the cache header;
2. Copy, translate, modify, create a derivative work of, sell, lease, lend, convey, distribute, publicly display, or sublicense to any third party;
3. Misrepresent the source or ownership; or
4. Remove, obscure, or alter any copyright, trademark, or other proprietary rights notices; or falsify or delete any author attributions, legal notices, or other labels of the origin or source of material.

6.8 Brand Features; Attribution

6.8.1 Brand Features

"Brand Features" is defined as the trade names, trademarks, service marks, logos, domain names, and other distinctive brand features of each party. Except where expressly stated, the Terms do not grant either party any right, title, or interest in or to the other party's Brand Features. All use by you of CliniComp's Brand Features (including any goodwill associated therewith) will inure to the benefit of CliniComp.

6.8.2 Attribution

You agree to display any attribution(s) required by CliniComp as described in the documentation for the API. CliniComp hereby grants to you a nontransferable, nonsublicensable, nonexclusive license while the Terms are in effect to display our Brand Features for the purpose of promoting or advertising that you use the APIs. You must only use our Brand Features in accordance with the Terms and for the purpose of fulfilling your obligations under this Section. You understand and agree that we have the sole discretion to determine whether your attribution(s) and use of our Brand Features are in accordance with the above requirements and guidelines.

6.8.3 Publicity

You will not make any statement regarding your use of an API which suggests partnership with, sponsorship by, or endorsement by CliniComp without our prior written approval.

6.9 Termination

6.9.1 Termination

You may stop using our APIs at any time with prior notice as described in your user agreement with CliniComp|EHR. Further, upon termination, cease your use of the applicable APIs. CliniComp reserves the right to amend the Terms upon notice to you and to terminate the Terms with you or discontinue the APIs or any portion or feature or your access thereto for any reason and at any time without liability or other obligation to you.

6.9.2 Your Obligations Post-Termination

Upon any termination of the Terms or discontinuation of your access to an API, you will immediately stop using the API, cease all use of the CliniComp Brand Features, and delete any cached or stored content that was permitted by the cache header under the section 6.7 on Content. CliniComp may independently communicate with any account owner whose account(s) are associated with your API Client and developer credentials to provide notice of the termination of your right to use an API. In addition, the obligations of Confidentiality contained in section 6.6 and Indemnification contained in section 6.10.2, as well as the Limitation of Liability contained in section 6.10.1, will survive the termination of the Terms.

6.10 Liability & Indemnification

6.10.1 Limitation of Liability

When permitted by law, CliniComp, and CliniComp's suppliers and distributors, will not be responsible for loss of profits, revenues, or data, financial losses, or indirect, special, consequential, exemplary, or punitive damages.

To the extent permitted by law, the total liability of CliniComp, and its suppliers and distributors, for any claim under the terms, including for any implied warranties, is limited to the amount you paid us to use the applicable API's (Or, if we choose, to supplying you the API's again) during the 6 months prior to the event giving rise to the liability.

In all cases, CliniComp, and its suppliers and distributors, will not be liable for any expense, loss, or damage that is not reasonably foreseeable.

6.10.2 Indemnification

Unless prohibited by applicable law, if you are a business, you will defend, indemnify, and hold harmless CliniComp, and its affiliates, directors, officers, employees, and users, against all liabilities, damages, losses, costs, fees (including legal fees), and expenses relating to any allegation or third-party legal proceeding to the extent arising from:

- your misuse or your end user's misuse of the APIs;
- your violation or your end user's violation of the Terms; or
- any content or data routed into or used with the APIs by you, those acting on your behalf, or your end- users.

7 Appendix

CLINICOMP, INTL. API TERMS OF USE

These CliniComp API Terms of Use form an agreement (the “Agreement”) between CLINICOMP, Intl. (“CliniComp”), and you (the “Developer”). By accessing or using any CliniComp API, you are agreeing to be bound by the terms of this Agreement.

BACKGROUND. CliniComp provides an electronic healthcare record software (“CliniComp, Intl.”). Developer provides products and services (the “Developer Applications”) to developer’s customers, some of which are also CliniComp customers. Developer desires to obtain access and make calls to CliniComp APIs. CliniComp is willing to provide such access subject to the terms and conditions herein.

AGREEMENT. In consideration of the foregoing and the mutual promises made herein, the parties agree as follows.

1. **Acceptance of Terms.** You are deemed to be entering into this Agreement and accept all of its terms if you access or use any CliniComp API. If you are using the CliniComp APIs on behalf of an entity, you represent and warrant that you have authority to bind that party to this Agreement, and you are doing so on behalf of both you and that entity. Notwithstanding the foregoing, the terms of this Agreement shall be superseded by any conflicting or additional terms set forth in a separate written agreement that you or that entity specifically enter into with CliniComp regarding the use of CliniComp APIs.
2. **Certain Defined Terms.** As referenced in the Agreement, the following terms are defined as hereinafter set forth:
 - A. “Developer Data” means all data created by Developer or a Developer Application.
 - B. “CliniComp API” means any form of machine accessible application programming interface provided by CliniComp that provides access to or enables interaction with a CliniComp service, and includes all associated documentation, tools, and sample code, and executables of any of the foregoing.
 - C. “CliniComp Data” means all data created by CliniComp products, whether or not derived from Provider Data.
 - D. “Providers” means the providers of medical services for whom Developer will provide Developer Applications that interoperate through a CliniComp API hereunder.
 - E. “Provider Data” means, as to a particular Provider, data created by that Provider that is stored in or accessible from a CliniComp product.
3. **Grant of License.** Subject to the terms in this Agreement, CliniComp hereby grants Developer a limited, non-exclusive, non-assignable, non-transferable, revocable license to use and make calls to certain CliniComp APIs provided for general access to the developer community for the sole purpose of developing, testing, and supporting elements of the Developer Application that interface with and interoperate with a CliniComp product.
4. **Restrictions on Use.** In addition to any other limitations set forth in this Agreement or imposed by law (per 45 CFR § 170.404 (a) (2) (ii)), Developer will not:
 - A. Use any CliniComp API in a way that could impair, harm or damage CliniComp, any CliniComp service or application, or any other person’s use of a CliniComp API, service or application, or that exceeds the API use restrictions set forth in any documentation, if applicable;
 - B. Use any CliniComp API to disrupt, interfere with, or attempt to gain unauthorized access to services, servers, or networks connected to, or accessible through, any CliniComp API, including those of CliniComp or any Provider;

- C. Reverse engineer, decompile, or disassemble any CliniComp API or software product, or redistribute, resell or sublicense access to any portion of a CliniComp product;
- D. Use any CliniComp API in a way that threatens the integrity, performance or reliability of any CliniComp API, including performance or stress testing, or in any manner that works around any technical limitations incorporated into a CliniComp API;
- E. Request from a CliniComp API any Provider Data that is not required for the Developer Application to operate in accordance with its documentation and the direction of the applicable Provider, or for which it does not have a valid grant of access from the applicable Provider;
- F. Import or write any personally identifiable information or protected health information (as such terms are defined by any applicable law) or production data of any sort into a testing or non-production environment established by CliniComp for integration testing or similar use by developers;
- G. Resell, sublicense or, except as expressly contemplated in this Agreement, distribute any Provider Data or CliniComp Data;
- H. Share any access credentials provided by CliniComp with any third party, or use any such credentials for a Provider or practice other than the one identified by CliniComp for such purpose;
- I. Falsify or alter any identifier assigned to a Developer Application, or otherwise obscure or alter the source of queries coming from a Developer Application; or
- J. Use any CliniComp API or any CliniComp Data in a manner that violates any applicable law or third party right, including federal and state laws pertaining to the privacy and protection of personal health information and personally identifiable information.
5. **Promotion.** Developer and CliniComp shall each be permitted to disclose to Providers the existence of this Agreement and that Developer has received CliniComp's limited authorization for the Developer Application to interface and interoperate with the API. Neither party shall make any misleading statements regarding the other's products or services, including any inaccurate description or unauthorized warranty relating to the other's offerings, nor any statement which suggests a partnership, sponsorship, or endorsement of the other party. Each party hereby grants to the other a limited, non-exclusive, non-assignable, nontransferable, revocable right to use its name and logo and the name and logo of the interfacing CliniComp API and Developer Application, as applicable (collectively, the "Marks") during the Term and solely as described in the immediately preceding sentence. All such use of the Marks shall inure only to the benefit of the owner thereof and, except as expressly provided herein, neither party is granting the other any right, title or interest in its or its affiliates' Marks.
6. **Support and Maintenance.** Per 45 CFR § 170.404 (a) (4) (iii), CliniComp will use commercially reasonable efforts to provide Developer with access to current documentation for the CliniComp APIs. CliniComp shall not be required to provide training or other support relating to Developer's use of any CliniComp API or CliniComp Data, and CliniComp has no obligation to update or modify the CliniComp APIs.
7. **Modifications; Deprecation.** Developer acknowledges and agrees that CliniComp may, in its sole discretion, update or modify all or any portion of the CliniComp APIs and that such updates or modifications may remove or restrict previously existing functionality or require Developer to update or modify its Developer Applications.
8. **Confidentiality.** During the Term, Developer may obtain access to information of CliniComp that is of a confidential or proprietary nature. Such information is collectively referred to as "CliniComp Information." Developer agrees to not use such CliniComp Information except as expressly contemplated by this Agreement, and to not disclose it to any third party without CliniComp's prior written consent.

Notwithstanding the foregoing, disclosure is permitted to the extent required by law or court order, provided Developer first gives reasonable notice to CliniComp (unless prohibited by law or court order) and, if requested, provides reasonable assistance in obtaining a protective order. CliniComp Information does not include information that Developer independently develops (without use of any other CliniComp Information), that was rightfully given to Developer by a third party without any conflicting obligation of confidentiality, or that becomes public through no fault of Developer.

9. **Ownership Rights.** Except as expressly provided for in this Agreement, CliniComp retains all right, title and interest in the CliniComp APIs, the CliniComp Data, the CliniComp Information, and all of CliniComp's other intellectual property, data and technology, and Developer retains all right, title and interest in the Developer Application, the Developer Data and all of its other intellectual property, data and technology. Notwithstanding anything to the contrary herein, CliniComp shall have the right, without limitation or obligation to Developer, to use and commercialize any feedback provided by Developer to CliniComp about the CliniComp APIs.

10. **Non-exclusive.** This Agreement is non-exclusive, and nothing herein shall prohibit CliniComp from developing any product or service, including those that may be similar to or competitive with the Developer Application (per 45 CFR § 170.404 (a) (4) (ii) (B) 3).

11. **Audit Right.** Developer agrees that CliniComp may monitor use of the CliniComp APIs to ensure compliance with the terms of this Agreement, and Developer will not take any action to interfere with such monitoring. In addition, CliniComp shall be permitted, upon reasonable advance notice and during regular business hours, to inspect and audit the files and records of Developer as necessary to verify compliance with this Agreement, and Developer shall cooperate with all reasonable requests in conducting any such audit.

12. **Term and Termination; Suspension.** The term of this Agreement shall commence on the Effective Date of registration and will continue until terminated in one of the following manners. Developer may terminate this Agreement upon written notice at any time. CliniComp may terminate this Agreement and Developer's use of all CliniComp API's (A) for any reason, upon ninety (90) days' prior written notice, (B) on thirty (30) days' prior written notice in the event of a breach by Developer of any term of this Agreement that is capable of cure, unless such breach has been cured (as determined by CliniComp) within such thirty (30) day period; or (C) immediately in the event of a material breach by Developer that is not capable of cure, including any breach of Section 4 of this agreement. In addition, if CliniComp determines, in its sole discretion, that Developer's use of the CliniComp API is causing an interruption or degradation in the performance of any CliniComp API, then CliniComp may, without liability to Developer or any other party, temporarily suspend Developer's access to the CliniComp APIs until such time as CliniComp is reasonably assured that such interruption or degradation shall no longer occur.

13. **Effect of Termination; Survival.** Immediately upon the termination of this Agreement for any reason, (A) CliniComp shall cease all use of Developer's Marks (e.g. trademarks, tradename and the like), (B) Developer shall cease all use of the CliniComp APIs, the CliniComp Data, the CliniComp Information, and CliniComp's Marks, and (C) all licenses granted in this Agreement shall terminate. Notwithstanding the foregoing, each provision of this Agreement that by its nature is intended to apply beyond its term will survive its termination, including this Section 13 and each of Sections 8, 9, and 14 through 17, inclusive.

FOLLOWING ANY TERMINATION OR EXPIRATION OF THIS AGREEMENT, DEVELOPER SHALL NOT USE OR RETAIN ANY PROVIDER DATA OBTAINED THROUGH A CLINICOMP API WITHOUT THE EXPRESS PERMISSION, UNDER SEPARATE AGREEMENT, FROM EACH APPLICABLE PROVIDER. UPON REQUEST BY CLINICOMP, DEVELOPER SHALL CERTIFY IN WRITING ITS COMPLIANCE WITH SUCH RESTRICTION.

14. **Indemnification.** Developer shall indemnify and hold CliniComp, its affiliates, and each of their respective directors, officers, employees and agents, together with each of their respective successors and assigns, harmless against any and all claims, demands, liabilities, damages, losses, costs, fees (including legal fees) and expenses, of any type whatsoever relating to a third party claim arising out of (A) Developer's use of a CliniComp API or breach of this Agreement, (B) any data or content routed by Developer or its customers through the Developer Application, or (C) any claim that the Developer Application infringes the patent, copyright, trademark or other intellectual property right of a third party (except to the extent such claim is based on the CliniComp API). Any claim for indemnification hereunder shall be made promptly following the event giving rise thereto, provided that any failure or delay in providing such notice shall not relieve Developer of its obligations except to the extent actually prejudiced thereby. In the event of any claim for indemnity hereunder, Developer shall, if requested by CliniComp in writing, promptly assume the defense thereof, at its own expense, with counsel reasonably acceptable to CliniComp. Regardless of which party is defending, each party shall cooperate with the other as reasonably requested in connection the indemnified matter, shall keep the other reasonably apprised of the status thereof, and shall not enter into any settlement or compromise that creates any obligation or liability or admits any wrongdoing on behalf of the other party without the consent of such other party, not to be unreasonably withheld, conditioned or delayed.

15. **Disclaimer and Limitation of Liability.**

A. EXCEPT AS EXPRESSLY SET FORTH HEREIN, CLINICOMP MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, REGARDING THE SUBJECT MATTER OF THIS AGREEMENT, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. SPECIFICALLY, CLINICOMP MAKES NO WARRANTY THAT THE CLINICOMP APIS WILL FUNCTION AS INTENDED OR THAT THEY WILL BE AVAILABLE OR FREE FROM BUGS OR OTHERWISE MEET DEVELOPER'S NEEDS. THE CLINICOMP APIS ARE PROVIDED "AS-IS."

B. NOTWITHSTANDING ANYTHING ELSE IN THIS AGREEMENT OR OTHERWISE, THE TOTAL LIABILITY OF CLINICOMP AND ITS AFFILIATES UNDER THIS AGREEMENT SHALL BE LIMITED TO FIFTY DOLLARS (\$50). IN NO EVENT WILL CLINICOMP OR ITS AFFILIATES BE LIABLE TO DEVELOPER OR ITS AFFILIATES UNDER THIS AGREEMENT FOR ANY OTHER DAMAGES, UNDER ANY LEGAL THEORY, WHETHER DIRECT OR INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR OTHERWISE, INCLUDING LOST PROFITS, DATA OR BUSINESS OPPORTUNITY. THE FOREGOING SHALL APPLY EVEN IF CLINICOMP OR SUCH AFFILIATE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND EVEN IF A LIMITED REMEDY SET FORTH IN THIS AGREEMENT FAILS OF ITS ESSENTIAL PURPOSE.

16. **Dispute Resolution.** Any controversy or claim arising out of or relating to this Agreement shall be settled solely by binding arbitration administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules, and judgment on the award rendered by the arbitrator may be entered in any court having jurisdiction thereof. Claims shall be heard by a single arbitrator. The place of arbitration shall be State of Delaware. The arbitration shall be governed by the laws of the State of Delaware (other than choice of law principles thereof). The prevailing party shall be entitled to an award of reasonable attorney fees. Except as may be required by law, neither a party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties. Notwithstanding the foregoing, each party agrees that the other shall be entitled to specific performance of the other's obligations under Sections 4 or 8 of this agreement and without any requirement to post a bond or prove damages.

17. **General Provisions.**

A. Subsidiaries and affiliates. Developer agrees that certain CliniComp APIs or portions thereof may be provided by subsidiaries or affiliates of CliniComp and, to the extent so provided, this Agreement also governs the provision thereof and the relationship between Developer and such entities.

B. Assignment. Developer may not assign or delegate this Agreement, in whole or in part, without the prior written consent of CliniComp. CliniComp may assign this Agreement without restriction in the event of any sale of all or substantially all of its assets or any merger, sale of stock, or similar transaction. Subject to this Section 17.B, this Agreement shall inure to the benefit of and shall be binding upon the parties hereto and any permitted successor or assign.

C. Severability. If any provision of this Agreement is determined to be unenforceable, the enforceability of the remaining provisions will not in any way be affected or impaired, and the parties shall substitute an enforceable provision for the affected provision which approximates the intent and economic effect of the affected provision as closely as possible.

D. Relationship of the Parties. The parties hereto are each independent contractors of the other, and nothing contained herein shall be construed as creating any partnership, joint venture, or other form of joint enterprise between the parties. Except for the indemnitees described in Section 14, there are no third-party beneficiaries to this Agreement.

E. Construction; Certain Definitions. The parties agree that (i) “including” and other words or phrases of inclusion shall be regarded as nonexclusive and equivalent to the terms “including, but not limited to,” (ii) “person” means, as applicable, an individual person, corporation, limited liability company, joint venture, or unincorporated organization, as well as any governmental authority, and (iii) “affiliate” means, with respect to any person, any other person that controls, is controlled by, or is under common control with, such person. Whenever appropriate, singular forms used herein shall be deemed to include the plural and plural forms used herein shall be deemed to include the singular. The captions and other headings contained in this Agreement are inserted for convenience of reference only and shall not affect the interpretation or meaning of this Agreement. Each party has had the chance to consult with counsel regarding this Agreement and accordingly agrees that in the event any provision hereof is deemed to be ambiguous, no presumption shall arise for or against either party because it or its representatives were the drafters thereof.

F. Amendment and Waiver. In order to be binding, any amendment or modification of any of the provisions of this Agreement must be in writing and signed by a duly authorized representative of each party. In the event of a conflict between the terms hereof and any such written modification, the document later in time shall prevail. Any waiver of a right set forth in this Agreement shall only be effective if made in writing by the party against whom it is to be enforced. The waiver of any breach or delay in enforcing any provision of this Agreement shall not operate as a waiver of any subsequent breach or right to enforce the same.

G. Notices. Any notice required or permitted under this Agreement shall be in writing and shall be deemed to have been delivered: (i) upon personal delivery; (ii) three (3) business days after registered certified mailing, postage prepaid and return receipt requested; (iii) one (1) business day after being sent by nationally recognized express courier for next business day delivery, costs prepaid, or (iv) on the date sent by PDF attached to an electronic mail message if sent before 5pm on a business day at the recipient’s location and, if not, on the next business day. Notices sent to CliniComp shall be addressed to its primary business address. Notices sent to Developer may be addressed to any address, including email address, that has been provided by Developer for registration or use of a CliniComp API and has not been rescinded.

H. Counterparts; Signatures. This Agreement may be executed in one or more counterparts, all of which together constitute the same agreement. Signatures delivered by facsimile, email or other electronic means shall have the same effect as original signatures.

I. Entire Agreement. This Agreement (including all exhibits, addendums, and schedules hereto, which are hereby incorporated by reference) comprises the entire understanding and agreement of the parties concerning the subject matter hereof, and supersedes all prior writings, discussions, representations and understandings with respect thereto.

J. Governing Law. These terms and conditions and the transactions contemplated hereby shall be governed by, and construed and interpreted in accordance with, the laws of the State of Delaware, U.S.A., without regard to the choice-of-law principles thereof.

NO SIGNATURE REQUIRED. DEVELOPER ACCEPTS THIS AGREEMENT BY ACCESSING OR USING ANY CLINICOMP API.