

**Report on CCD Functionality of Colorado Community Health Center
EMR Systems
September 2008**

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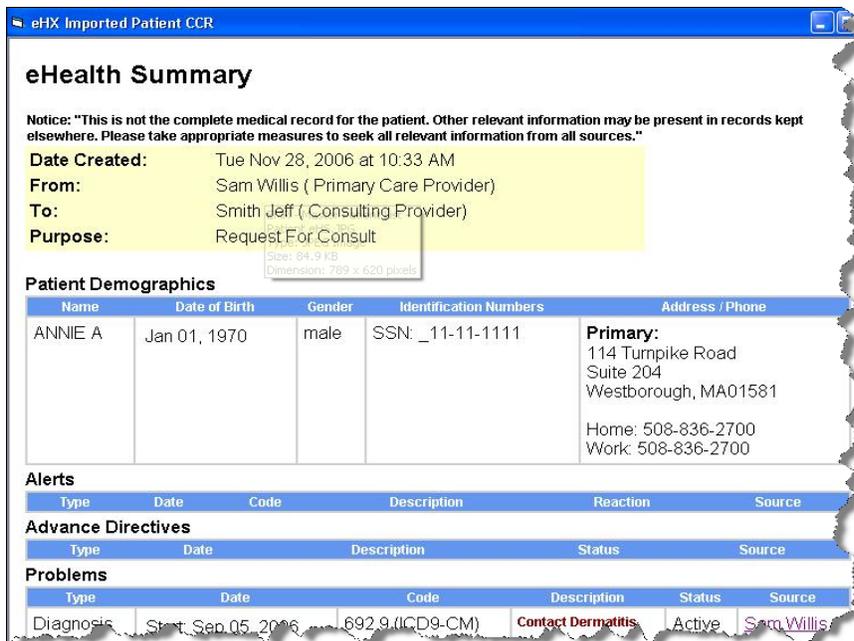
eClinical Works

1. Can your system produce a CCD/CCR or export information in the XML-HL7 CDA standardized format? For what software versions is this true? And, can this capability be updated on older versions of your software?

The current version eClinicalWorks 8.0 can export and import CCR in XML format. Customers with older versions can upgrade to the newer version. “eHealth Summary” and CCR are terms used interchangeably. The eHealth Summary is found in the eHX system as well, which is the community health exchange product developed by eCW. A CCD feature with enhanced features over the CCR is currently under development.

Standards Based Technology and Nomenclature facilitates the reliable sharing of clinical data across the enterprise:

- ASTM, HL7, ANSI, CCR/CCD compliant (ANSI: compliant with the C31 CCR, V. 1.)
- Dx – ICD codes
- Procedures – CPT codes
- HPI – SNOMED
- Rx – NDC
- Labs–LOINC



2. If CCD production is not an automated feature of your product, what (if any) is the approx. financial cost/burden to the user to add CCD production/development to their system? “Is automated CCD production/development a purchasable add-on or a functionality that requires additional professional support (purchased by the user) to make CCD production operable?”

Financial information on the CCD under development is not available. The eHealth Summary can be automated for import/export as it follows industry standard format.

3. What XML format specifications are being followed? For how long has this format/capability been available?

XML 1.1 2nd version, an exact date for the incorporation of this format is not available.

4. What is the process for developing and who develops the CCD (e.g., the clinic or the vendor)?

eClinicalWorks Development Team is responsible for developing the CCD.

eCW Standard Development Processes:

eClinicalWorks takes great pride in the fact that it is responsive to customer suggestions and requests for added functionality. eCW receives input via the Customer Care Portal, the annual Roundtable conference, the eCW User's Group, and from our trainers. Roughly 60% of the product enhancements are customer-driven; 25% of the enhancements are the result of internal R&D; and 15% of the enhancements are the result of government and other mandated industry requirements.

The eClinicalWorks Development team is comprised of approximately 80 highly qualified designers. The Team Lead is one of the founders of eCW, which reflects eCW's dedication to meeting the needs of customers and developing new technology to anticipate future demands

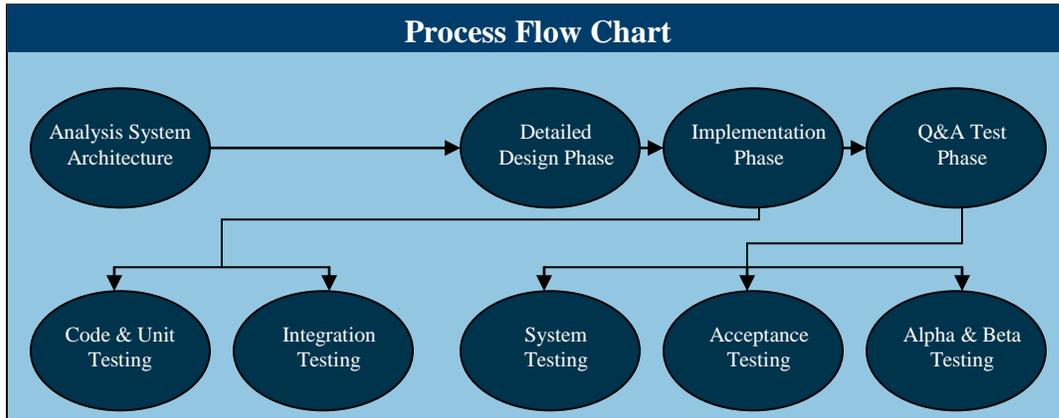


Table Description:

The above chart titled *Process Flow Chart* has bubbles with text inside and arrows indicating the order and relationship of the process flow.

Bubble one: reads "Analysis System Architecture," and points to the next bubble on its right.

Bubble two: reads "Detailed Design Phase," and points to the next bubble on its right.

Bubble three: reads "Implementation Phase," and points to its right to bubble four and down to bubbles five and six.

Bubble four: reads "Q&A Test Phase," and points down to bubbles seven, eight and nine.

Bubble five: reads "Code & Unit Testing."

Bubble six: reads "Integration Testing."

Bubble seven: reads "System Testing."

Bubble eight: reads "Acceptance Testing."

Bubble nine: reads "Alpha & Beta Testing."

5. Is there a tool to build and or modify the CCD? For example, modifications of the content included in the CCD/CCR

No, currently there is not a tool available to modify the CCD.

5. What clients have implemented your CCD tool and for how long has it been in use? Can we get a reference for a couple of users?

The CCD has yet to be released.

7. How much do the vendors need to intervene and support users when a CCD needs to be modified or built?

The CCD build is still in progress at eCW. In addition, this would vary depending on the specific modifications required.

8. How are the end-users using these CCD? Are they importing CCD/CCRs into the EMR ? Are they exporting CCD/CCR generated from the EMR?

Presently users are both importing and exporting CCR throughout the community health exchange.

9. Can CCD be used to import data into the EMR? Can they be imported into a relational database?

Yes, providers can export and import CCR data for patients who have opted into the health network, can review labs/test/procedure results on patients in the network, can send and receive referrals to other providers in the network, and can view encounters patients have had with other providers.

10. How would those data be represented in the EMR or how have end-users used those data in the EMR?

End-users would be able to import and export CCD seamlessly between EMR and data repositories, other EMRs, etc.

11. Can you give references for end-users who have imported the data and examples of those uses?

The CCD has yet to be deployed.

12. Does your CCD follow any of the standards or specifications being promoted by IHE?

eCW has been a supporter of the IHE initiative since 2006

eClinicalWorks was one of six vendors from different market segments selected to participate in the CCHITSM Pilot Study which was designed to gauge the testability of CCHIT's certification criteria and demonstrate the effectiveness of its process.

eCW is CCHIT 2007 Certified and is awaiting 2008 certification.



13. Can we get some material from you on exactly what standards/specifications are being followed and how they have recently changed?

The 2008 CCHIT standards are available from CCHIT.

14. What is the trajectory for future development of CCD for the company?

As stated, a CCD build is in progress at eClinicalWorks. It is likely to be complete by Q4 of 2008. The CCD will be incorporated into the EMR and eEHX systems.

15. What is the cost to the user of pursuing automated CCD production?

Currently, eHealth Reports (CCR) can be automated at no extra cost (standard EMR feature). It is expected that the CCD will have automated scheduling abilities as well.

16. How can a CCD be automatically generated on a schedule without human intervention? If it can be automated, is there a way to capture only the data that has been added/changed/deleted since the last export?

The CCD can be configured to be sent to any data repository and can be a scheduled event. The CCD has not been finalized but it is not expected to send only the most recently added/changed data. However, a workaround is that the entire record can be filtered. Examples of filtering would be based on the time/date/source stamp.

17. Can the CCD creation process identify items that have been deactivated, removed or deleted?

Time/date/user stamps can be used to identify new, changed, or deleted data.

18. What are our options for automating nightly data extraction from your system?

eClinicalWorks uses SOAP/HTTPS and XML for requesting, importing, and extracting clinical data. Nightly extractions can be scheduled by users with administrative privileges.

19. What versions of the software can create a CCD?

eClinicalWorks 8.0 and eEHX both incorporate CCR/eHealth Summary capabilities.

NEXTGEN

1. Can your system produce a CCD/CCR or export information in the XML-HL7 CDA standardized format?

CCR today, CCD by end of Calendar 2008

For what software versions is this true? And, can this capability be updated on older versions of your software?

Release 7 - CCR, Release 7 patch - CCD

2. If CCD production is not an automated feature of your product, what (if any) is the approx. financial cost/burden to the user to add CCD production/development to their system?" "Is automated CCD production/development a purchasable add-on or a functionality that requires additional professional support (purchased by the user) to make CCD production operable?

CCR and CCD production are automated features of base CCR/CCD product

3. What XML format specifications are being followed (in reference to the CCD)? For how long has this format/capability been available?

Jibu George is following up

4. What is the process for developing and who develops the CCD (e.g., the clinic or the vendor)?

Part of licensed software provided by Vendor – includes sending and receiving, parsing of received CCD into discrete data for patient, and building of CCD for export

5. Is there a tool to build and or modify the CCD? For example, modifications of the content included in the CCD/CCR

There are configurable components through File Maintenance. Standards adherence is key – NG is not providing a total custom build tool.

6. What clients have implemented your CCD tool and for how long has it been in use? Can we get a reference for a couple of users?

CCR – HeartPlace, Dallas

7. How much do the vendors need to intervene and support users when a CCD needs to be modified or built?

Part of standard software releases

8. How are the end-users using these CCD?

In a bi-directional referral application requiring discrete data exchange between a GE Centricity EMR and a NextGen EMR

Are they importing CCD/CCRs into the EMR ?

Yes

Are they exporting CCD/CCR generated from the EMR?

Yes

9. Can CCD be used to import data into the EMR? Can they be imported into a relational database?

Yes, depends on specific EMR product, generally recent CCHIT-certified products can handle this

10. How would those data be represented in the EMR or how have end-users used those data in the EMR?

Generally flag items as coming from external entity – either in initial display or through a one step drill down disclose the source of the data

11. Can you give references for end-users who have imported the data and examples of those uses?

See answer to Question 6

12. Does your CCD follow any of the standards or specifications being promoted by IHE?

It will. Part of our ongoing NextGen commitment as demonstrated through our ongoing support of the CCR standard

13. Can we get some material from you on exactly what standards/specifications are being followed and how they have recently changed?

Yes, Jibu George is following up

14. What is the trajectory for future development of CCD for the company?

Incorporation as standard part of product line in accordance with IHE, CCHIT, and HITSP

15. What is the cost to the user of pursuing automated CCD production?

Part of license fee

16. How can a CCD be automatically generated on a schedule without human intervention? If it can be automated, is there a way to capture only the data that has been added/changed/deleted since the last export?

If desired can be set up as a scheduled service as we currently handle updates of EMR tables to the CHS (e.g. Providers, Practices, etc.)

17. Can the CCD creation process identify items that have been deactivated, removed or deleted?

Yes

18. What are our options for automating nightly data extraction from your system?

See answer to question 16

19. What versions of the software can create a CCD?

See answer to question 1

NOTEWORTHY

1. Can your system produce a CCD/CCR or export information in the XML-HL7 CDA standardized format? For what software versions is this true? And, can this capability be updated on older versions of your software? *Yes, just completing development. We are an ASP so everyone is on the same version level so will all have access after beta in two months.*
2. If CCD production is not an automated feature of your product, what (if any) is the approx. financial cost/burden to the user to add CCD production/development to their system?" "Is automated CCD production/development a purchasable add-on or a functionality that requires additional professional support (purchased by the user) to make CCD production operable? *It's an automatically included feature.*
3. What XML format specifications are being followed? For how long has this format/capability been available? *Multiple (currently 1.0 and 2.0, but can handle any). Our first use was NCPDP starting over 2 years ago.*
4. What is the process for developing and who develops the CCD (e.g., the clinic or the vendor)? *We (the vendor) develop the format, then the clinic can select the components being sent.*
5. Is there a tool to build and or modify the CCD? For example, modifications of the content included in the CCD/CCR *Yes.*
6. What clients have implemented your CCD tool and for how long has it been in use? Can we get a reference for a couple of users? *Still in development so no reference list available yet.*
7. How much do the vendors need to intervene and support users when a CCD needs to be modified or built? *None*
8. How are the end-users using these CCD? Are they importing CCD/CCRs into the EMR ? Are they exporting CCD/CCR generated from the EMR? *Both planned*

9. Can CCD be used to import data into the EMR? Can they be imported into a relational database? *Yes*
10. How would those data be represented in the EMR or how have end-users used those data in the EMR? *As discrete data elements in each appropriate table as long as the data was sent as discrete elements and not imbedded graphic images. Images would have to be stored as images.*
11. Can you give references for end-users who have imported the data and examples of those uses? *No reference list available yet.*
12. Does your CCD follow any of the standards or specifications being promoted by IHE? *Yes*
13. Can we get some material from you on exactly what standards/specifications are being followed and how they have recently changed? *(attach industry spec)??*
14. What is the trajectory for future development of CCD for the company? *Continue to follow CCD specs as they evolve.*
15. What is the cost to the user of pursuing automated CCD production? *None, included in our ASP fees.*
16. How can a CCD be automatically generated on a schedule without human intervention? If it can be automated, is there a way to capture only the data that has been added/changed/deleted since the last export? *If requested, but typically it is handled as a workflow item (sending or receiving referrals/consults).*
17. Can the CCD creation process identify items that have been deactivated, removed or deleted? *Yes*
18. What are our options for automating nightly data extraction from your system? *Same as #16, yes if requested.*
19. What versions of the software can create a CCD? *We're an ASP so everyone is on the same version (currently 9.6)*

Practice Partners

1. Can your system produce a CCD/CCR or export information in the XML-HL7 CDA standardized format? For what software versions is this true? And, can this capability be updated on older versions of your software?
Yes. We import/export ASTM CCR documents starting with Practice Partner v9.2, and import/export CCD documents starting with Practice Partner v9.3. Both versions are currently available. It is not possible to add this functionality to earlier versions of Practice Partner without upgrading.
2. If CCD production is not an automated feature of your product, what (if any) is the approx. financial cost/burden to the user to add CCD production/development to their system?" "Is automated CCD production/development a purchasable add-on or a functionality that requires additional professional support (purchased by the user) to make CCD production operable?
n/a; See above. CCD importation/exportation is a core feature of v9.3 and above; there is no added professional support or purchase required. See below (#16) re: automated import/export of documents.
3. What XML format specifications are being followed? For how long has this format/capability been available?
We follow the HL7 CCD standard (See #13 below for specifics). Exported CCDs conform to the HITSP C-32 Implementation Specification with some restrictions re: exportation of completely codified values for some types of data.
4. What is the process for developing and who develops the CCD (e.g., the clinic or the vendor)?
As above, CCD importation/exportation is an inherent feature of v9.3 and above.
5. Is there a tool to build and or modify the CCD? For example, modifications of the content included in the CCD/CCR
At runtime, when importing or exporting CCD documents, the user may choose which categories of data to include (e.g. medications, vital signs, problems, etc.) and within each category may choose to include or exclude specific records.

6. What clients have implemented your CCD tool and for how long has it been in use? Can we get a reference for a couple of users?

Practice Partner version 9.3 was released in August 2008 so few customers are using CCD import/export. CCR import/export capability has been around longer and we find customers are using it to facilitate coordination of care, particularly for “snowbird” patients who spend different parts of the year in different regions of the country.

7. How much do the vendors need to intervene and support users when a CCD needs to be modified or built?

There is no such need; see above.

8. How are the end-users using these CCD? Are they importing CCD/CCRs into the EMR ? Are they exporting CCD/CCR generated from the EMR?

See above.

9. Can CCD be used to import data into the EMR? Can they be imported into a relational database?

Yes; CCR and CCD documents can be used to directly populate data in the patient’s Practice Partner record, including the medication list, problem list, vital signs data, laboratory data, etc.

10. How would those data be represented in the EMR or how have end-users used those data in the EMR?

Data discretely imported from a CCR or CCD document are included in the same tables as other data of the same type.

11. Can you give references for end-users who have imported the data and examples of those uses?

I don’t have this at my fingertips; If really needed I can ask our Marketing Department to make inquiries.

12. Does your CCD follow any of the standards or specifications being promoted by IHE?

We are not aware of IHE profiles further refining the CCD, so would need some clarification regarding this question.

13. Can we get some material from you on exactly what standards/specifications are being followed and how they have recently changed?

They are as follows:

- ***Standard Specification for Continuity of Care Record (CCR)I - Designation: E 2369 – 05***
- ***HITSP Summary Documents Using HL7 Continuity of Care Document (CCD) Component (HITSP/C32). Since we support C32, the CCDs we create therefore conform to the following:***
 - ***HL7 Implementation Guide: CDA Release 2 – Continuity of Care Document (CCD)***
 - ***CDA Release 2***

14. What is the trajectory for future development of CCD for the company?

We plan to further support optional coded structured data elements for importation/exportation, e.g. RxNorm codes for medications.

15. What is the cost to the user of pursuing automated CCD production?

The CCD import/export feature is an inherent part of Practice Partner v9.3 for which there is no additional cost. For expansion of functionality beyond current capability (See also #16 below), custom interfacing would be required at the customer’s expense. If that is desired, we can initiate the requirements gathering process to develop a quote for that work.

16. How can a CCD be automatically generated on a schedule without human intervention? If it can be automated, is there a way to capture only the data that has been added/changed/deleted since the last export?

CCD production cannot be fully automated with Practice Partner, but it is possible for a user to create multiple CCDs at one fell swoop based on a list of patients with upcoming appointments or who meet certain clinical criteria. There is no support for automatically capturing data that has been added, changed or deleted since the last export, though it IS possible to specify filtering dates when creating CCDs from Practice Partner, so if the user knows when the last CCD was created on a patient (or group of patients) this can be done.

17. Can the CCD creation process identify items that have been deactivated, removed or deleted?

We do not currently support such identification.

18. What are our options for automating nightly data extraction from your system?

Please see #16 above

19. What versions of the software can create a CCD?
Practice Partner versions 9.3 and above

GE- Centricity

1. Can your system produce a CCD/CCR or export information in the XML-HL7 CDA standardized format? For what software versions is this true? And, can this capability be updated on older versions of your software?

Two answers. Current released version can not natively create CCD but can do so by passing an HL7 feed to our HIE gateway which converts the data into the CCD format. Future release for next year will natively support creation and export of the CCD.

2. If CCD production is not an automated feature of your product, what (if any) is the approx. financial cost/burden to the user to add CCD production/development to their system? “Is automated CCD production/development a purchasable add-on or a functionality that requires additional professional support (purchased by the user) to make CCD production operable?”

The Centricity HIE Services solution is sold on a subscription (hosted) basis. The costs are approx \$5000 per database to be connected to the HIE gateway, plus some project management fees, plus ongoing subscription of \$35 per physician per month.

3. What XML format specifications are being followed? For how long has this format/capability been available?

Centricity HIE Services can provide HL7 CCD, HITSP C32, as well as many other XML and HL7 2.x formats. These capabilities are part of a transaction service that has been in operation since 1999.

Centricity EMR has been capable of exporting HL7 2.x messages for years and is now focused on export of the HL7 CCD and HITSP C32 in preparation for CCHIT 2008. It is expected that this will be backward compatible with Centricity EMR versions in the field today.

4. What is the process for developing and who develops the CCD (e.g., the clinic or the vendor)?

Vendor develops (GE). We adhere to the HITSP-C32 spec for this document.

5. Is there a tool to build and or modify the CCD? For example, modifications of the content included in the CCD/CCR

Yes, this is part of the HIE Services capability – we can map the data into whatever format is desired.

6. What clients have implemented your CCD tool and for how long has it been in use? Can we get a reference for a couple of users?

This is a new offering. The most public reference site is the Vermont State HIE (VITL). You can speak to their President, Greg Farnum. Another reference is Boston Medical Center who participated with us in a demonstration project last year to show CCD exchange integrated into the EMR workflow between 8 CHC’s in the Boston area. They have since contracted for a full production implementation that goes live later this year.

7. How much do the vendors need to intervene and support users when a CCD needs to be modified or built?

Today there is a lot of intervention needed from the vendor due to the fact that EMR does not natively export CCD standard. Future release will require significantly less intervention as this will be automated within the EMR.

8. How are the end-users using these CCD? Are they importing CCD/CCRs into the EMR ? Are they exporting CCD/CCR generated from the EMR?

Today they can do both. We both export content from the EMR (and convert into the CCD standard) and we also have tools to import CCDs into the EMR and add the discrete data elements selectively into the patient’s chart.

9. Can CCD be used to import data into the EMR? Can they be imported into a relational database?

Yes, this can be done today. See question 8. This process adheres to the HITSP specs where such exist, and non-coded data elements can also be shared but with the need for mapping using the HIE gateway.

10. How would those data be represented in the EMR or how have end-users used those data in the EMR?

They can be added to the patient's chart (problems, meds, allergies) individually – the physician or their staff launches an encounter form that “reads” the CCD section by section, and they can dialog with the patient to confirm that each data element in each category is still applicable. Or they can simply import all the data into the chart if that is their preference. There is field level control over what data gets imported.

11. Can you give references for end-users who have imported the data and examples of those uses?

Yes see above. Question 6.

12. Does your CCD follow any of the standards or specifications being promoted by IHE?

Yes, they are strictly compliant with IHE and HITSP C-32 specifications.

13. Can we get some material from you on exactly what standards/specifications are being followed and how they have recently changed?

See additional document on CCD primer.

14. What is the trajectory for future development of CCD for the company?

It is planned for native capability in future releases of all our EMR products.

15. What is the cost to the user of pursuing automated CCD production?

If Centricity HIE Services is used (e.g. with today's version of the EMR) the cost is as shown in Question 2 above. For the capability in future releases, it will most likely be included as base functionality as part of the license fee for the software itself.

16. How can a CCD be automatically generated on a schedule without human intervention? If it can be automated, is there a way to capture only the data that has been added/changed/deleted since the last export?

This can be done today. The signing of the encounter/visit by the physician triggers the export of the data to the HIE Services gateway, and it is then automatically mapped into the CCD standard and stored. As for capturing only the updated data, that is not part of the process at the present time. The concept is that the documents are stored and then imported into the EMR by the physician requiring the data – it is at the EMR database level where the data is reconciled, not in the HIE.

17. Can the CCD creation process identify items that have been deactivated, removed or deleted?

The CCD is capable of tracking active and historical Conditions, Medications, etc. It is also possible to deprecate and retrieve CCD's so that historical CCD's can be overlayed by a current CCD. CCD reconciliation is not currently part of the offering but instead is part of the EMR workflow.

18. What are our options for automating nightly data extraction from your system?

This can be done today. The extraction can be done on a per encounter or batch basis.

19. What versions of the software can create a CCD?

Per the above, today (Centricity EMR version 2005) we use Centricity HIE Services to create CCD documents compliant with the HITSP C-32 specification (IHE compliant). Future release will support native creation of CCD from within the EMR directly.