White Paper: Feature and Function Recommendations to the HIT Industry to Optimize Clinician Usability of Direct Interoperability to Enhance Patient Care

By: DirectTrust Clinicians' Steering Group for Direct Interoperability in Care Transitions and Coordination[1]

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Public Comment Invited: February 1 – March 30, 2017[2]

Summary

Direct Interoperability is now a widely deployed federal standard[3] for secure transport of healthcare information, in use through over 350 electronic health records (EHRs) at over seventy thousand health care organizations nationally and increasingly relied upon for interoperable data sharing across the boundaries of organizations and health information technology (HIT) systems.   Secure, interoperable sharing of patients' clinical information across these boundaries is critically important to patients, clinicians and care teams involved in patient transitions and care coordination, particularly in the typical medical community where patients are engaged with multiple providers from separate organizations who utilize diverse vendors' EHRs and other HIT applications.

Though HIT-enabled organizations are utilizing Direct Interoperability, after more than four years of experience this proven valuable tool is still poorly understood by many clinicians. The robust EHR features and functionality needed for the optimal use of Direct Interoperability

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[1] DirectTrust Clinicians' Steering Group members who participated in the authorship of this White Paper: Steven Lane, MD, Sutter Health; Holly Miller, MD, MedAllies; David C. Kibbe, MD, DirectTrust; Liz Ames, RN, Sutter Health; Joe Schneider, MD, University of Texas Southwestern; Francisco Rhein, MD, Dignity Health; Steven Waldren, MD, American Academy of Family Physicians; Larry Garber, MD, Reliant Medical Group; Lucy Johns, MPH

[2] Comments can be submitted to Admin@DirectTrust.org.

[3] The Applicability Statement for Secure Health Transport was initiated in 2010 by ONC as a collaboration between industry and government experts to establish a formal specification for the Direct Project, the primary goal of which was to create a simple, secure, standards-based means of interoperably sending protected health information (PHI) over the Internet and between users of different EHR vendors' products. Version 1.0 of what became known as the Direct Standard, was established through work involving software developers and leading security, identity, and Internet transport experts, and was released to the public in 2011. The Direct Standard was incorporated into the Meaningful Use program as a formal federal standard with publication of the 2014 Standards and Certification Criteria Final Rule 45 CFR 170.314 in August, 2012, and has been updated to the most current version 1.2 in 2016.

remain undeveloped, unimplemented, or implemented but unused by many clinicians.

To address this issue, starting in November, 2016, DirectTrust convened a group of clinicians with Direct Interoperability experience utilizing Direct messaging via diverse electronic health records (EHRs) from different vendors. This group has created a list of prioritized EHR software feature and function recommendations intended for the broad EHR and HIT vendor development community to enhance the usability of Direct Interoperability within and across HIT systems.

The group is aware that some vendors may have already developed some or many of these features and functions, but recommends that the vendor community utilize this list to ensure that the highest priority items are available, in a standard fashion, to end users of Direct Interoperability in the shortest possible timeframe, followed by the next highest priority group of features and functions, etc.

DirectTrust is a collaborative non-profit association of health IT and health care provider organizations to support secure, interoperable health information exchange via the Direct message and other electronic protocols. https://www.directtrust.org/about-directtrust/

Recommendations

In the pages that follow, recommendations for specific features and functions to be implemented by EHR vendors and other HIT vendors' products capable of Direct Interoperability are listed in three tables, one each for broad Direct exchange use cases in: Transitions of Care; Clinical Messaging; and Administration. The recommendations are grouped in each table into "outbound message functions" and "inbound message functions" in order to offer additional organization and clarity. A rationale or set of reasons for making each recommendation is also presented in a column next to each recommendation, and then a priority rating attached in the final column.   A Priority Legend can be found on the first page of each category of Direct exchange use cases.

Recommendations for Transitions of Care

Priority Legend

1	Required / Urgent / Now / Current-next version
2	Highly desired / Future priority / 1-2 years / Subsequent version
3	Advanced / Future development

Transitions of Care			
Feature/ Function	**Recommendation**	**Rationale**	**Priority**
Outbound Message Functions			
TO1: Real Time Message Delivery, Eliminate Batched Message Send	All Direct Interoperability messages are sent in "real time" and are never "batched" for timed sends.	Direct interoperability has been demonstrated to be a critical capability for information sharing in support of patient care. This information sharing allows clinicians to continue using their preferred HIT system, while making locally stored information available to other members of the patient's care team. This supports best practice transition of care management, saves lives and prevents ADEs. Research has shown that 1/5 discharged patients experience an adverse event post discharge. This also encourages ambulatory care practices to arrange for appropriate patient follow up, particularly for high risk patients. The send automation supports end users not	1

		wasting valuable time that could be devoted to direct patient care composing and sending messages. Clinicians, that have successfully used Direct, report the critical nature of the sending organization or provider, e.g. hospital, ED, specialist, PCP, BH organization, etc. sending the Direct message in "real-time" as opposed to via batch processes. This allows the receiver to organize appropriate patient outreach and follow up quickly and for patient care and transitional care management to be delivered more efficiently. Anecdotally, there are many reports of this resulting in the prevention of hospital readmissions and other adverse events.	
TO2: Direct Messages Automatically Triggered by Specific Events	EHR systems need to be configured to trigger the sending of a Direct message based on specific orders such as a discharge or referral. For example the acute care system can be configured such that when a patient discharge order is entered this triggers the automated send of a C-CDA to the PCP and/or ambulatory provider of record in the system if a Direct address is available for that clinician. Alternatively, organizations may want to configure an automated message to be sent once the hospital discharge summary has been completed. Or some organizations may want to configure separate discharge messages to be sent in response to both of these triggers. Ambulatory systems can be configured to send a Direct message to a referred to specialist triggered by a referral order. Similarly consultants' EHR systems can be configured to send a Direct Message to the referring provider triggered by a referred patient being seen and/or the completion of the	Automated sending of Direct messages ensures that the patient's responsible clinicians are aware of care transitions and have the most current and up to date information at the point of care. Timely receipt of messages facilitates information reconciliation in the recipient systems, helps to prevent unnecessary duplicate testing and adverse events.	1

	consultation note.		
TO3: Automatically Send Direct Message to Provider(s) of Record with Direct Accounts in the Sending System	Once a triggering event occurs, the sending system must be able to be configured to automatically send a message to: - the PCP of record - the referring physician - all providers identified as members of the patient's care team, and or - another identified provider given that the(se) provider(s) have Direct addresses.	Ensures continuity of care with the identified members of the patient's care team and prevents information blocking.	1
TO4: Include Patient Specific Attachments	The sending facility must be able to configure a Direct "template" (see above) that includes automatically attaching specific document types from the sending HIT system depending on the specific clinical scenario the template is designed for. For example attachments can include: structured data (C-CDA, Excel spreadsheets); unstructured data (Word, PDF, and plain text files) and image files (JPG and GIF). In addition, documents can be attached on the fly as needed.	Direct has been demonstrated to be a critical EHR capability for information sharing in support of patient care essentially virtualizing across the care team critical patient information. This information should include all clinically relevant document types in support of best practice and efficient care of patients as they transition across their medical neighborhoods. Virtualizing patient specific EHR information through the inclusion of a variety of document types also prevents duplicate testing or holes in clinical information required for patient care.	1

| TO5: USE HIT Industry-Wide Standardized Discrete Data Terminology for Problems, Medications, Allergies, and Immunizations (PAMI data) in all Direct Interoperable C-CDA documents. | All vendors should use all existing recognized standardized vocabularies such that these can be shared across all HIT systems promoting information sharing and EHR virtualization and preventing information blocking.

These specific vocabularies (e.g. PAMI Data: SNOMED, ICD10, RxNorm, CVX) included as applicable in all Direct C-CDA and other Direct documents | One of the tremendous promises of Direct interoperability is the ability for Direct messages to include standardized data vocabularies in a uniform fashion across all EHR vendors. Standardized use and transmission of discrete data would allow for exceptional end user functionality creating tremendous care and documentation efficiencies and preventing transmission error data entry. These efficiencies would further promote the desirability and use of Direct messaging and facilitate medical record reconciliation and EHR virtualization across the patient's care team. Medical record reconciliation can be lifesaving. Reconciliation using discrete data via Direct can dramatically save clinicians documentation time that can otherwise be devoted to direct clinical care. In addition, discrete data transport can eliminate potentially life threatening transcription errors. Data reconciliation following all care transitions should include all data for which there are discrete vocabularies: Problem list, active medications, allergies, immunizations, and procedures. | 1 |
| TO6: Ability to Customize C-CDA Templates | This functionality includes the ability for the sending organization to configure templates for specific clinical circumstances such as discharge, referral, specific diagnoses, or encounter types. For example,
- A "Discharge Template" could be configured to include a brief clinical summary, discharge reconciled problem list, medications, allergies, immunizations, procedures, first and last instance of any lab or test results, imaging studies, | Template Customization allows the organization to preconfigure the appropriate information to go to the next provider caring for the patient that includes the right information, the right amount of information and saves the clinician time to have to pull this information together on the fly for every Direct outgoing message. | 2 |

	operative notes and vitals, discharge instructions, etc. - A "Cardiology Referral Template" could be configured to include the patient's last clinic note, specific labs, and studies relevant to cardiology, the patient's active problems, meds, allergies, immunizations, family, medical, surgical, and social histories, urgency of request, and request for a specific cardiologist. Templates could be configured at the provider or organization level. The system would recognize the order trigger, e.g. Cardiology referral or discharge and automatically assemble the appropriate template.		
TO7: System Alert if Automated Message Cannot be Sent When the Send Trigger is Invoked	System will issue an alert if an automated message cannot be sent. For example when a discharge order triggers an automated discharge message, but there is no PCP of record or the PCP of record does not have a Direct address, the system will alert the provider that precipitated the trigger event.	This system alert will ensure that when there is an failure of the Direct automated message to leave the initiating system the clinician will receive an alert and can recognize that another information sharing process (e.g. fax, U.S. Mail, phone call, etc.) must be implemented.	2
TO8: Use HIT Industry Wide Standardized Discrete Data Terminology for Additional Data Types Including Procedures and Laboratory Results	All vendors use all existing recognized standardized vocabularies in order to exchange discrete data beyond PAMI data types, e.g. LOINC codes for lab results and CPT codes procedures, such that these can be shared across HIT systems.	Promotes the exchange of discrete patient data in support of care efficiency and population health management. Reduces medical errors and duplicate testing.	2

Inbound Message Functions			
TI9: View and Store Message Attachments in the Recipient HIT System	HIT systems should support a wide variety of content types as attachments, in addition to the C-CDA; structured data (C-CDA, Excel spreadsheets); unstructured data (Word, PDF, and plain text files) and image files (JPG and GIF).	Direct has been demonstrated to be a critical EHR capability for information sharing in support of patient care essentially virtualizing across the care team critical patient information. This information should include all clinically relevant document types in support of best practice and efficient care of patients as they transition across their medical neighborhoods. Virtualizing patient specific EHR information through the inclusion of a variety of document types also prevents duplicate testing or holes in clinical information required for patient care. Standardizing the expectation will eliminate the possibility vendors will strip an attachment from the message, removing important information.	1,
TI10: Automated Patient Identification	All EHR systems must be able to automate and match incoming Direct messages for patients that already exist in the recipient EHR. In the event that the patient is new or cannot be automatically matched (e.g. new referral to a specialist in the closed loop referral use case, or patient identification information that is not clearly consistent with a single existing patient) the EHR system will place the message in an EHR work queue for patient registration or manual matching. Only in the event that the system is unable to match a patient from an incoming Direct message will the message be put in a work queue for manual matching or registration of new patients.	Without automated patient identification, Direct interoperability is basically functioning on the same level as an EHR integrated fax server. The ability for a Direct message to reach the appropriate clinician is significantly delayed if a manual patient matching process is required. Depending on EHR functionality, staffing models and volume of Direct messages delays may be over 24 hours, an unacceptable delay to efficient clinical care which might put the patient at risk for an adverse event. Direct has been demonstrated to be a critical EHR capability for information sharing in support of patient care. Patient matching must be automated to prevent impeding data flowing to the intended recipient, potentially creating a life threatening	1,

		situation or patient ADEs. In addition, as Direct is adopted for all TOC, as well as clinical messaging, the sheer volume of incoming messages will tax already limited staff resources that must manually identify patients for all incoming messages.	
TI11: Reconciliation of Active Medications	Reconciliation of active medications: Following any patient care transition the C-CDA provided should include an active medication list. • For new patients, the recipient provider (or his or her delegate) should be able to pull this list directly into his or her EHR system with the medication and the full sig • For established patients, the recipient provider should be able to see onscreen a direct comparison of the medication list with the medication sig in his/her native EHR and be able to directly compare that list with the list of the medications and their sig that has been received in the C-CDA. The provider can them perform medication reconciliation, discontinuing medications in his/her EHR that the provider agrees should be replaced with medications on the received list, or adding new medications to his/her EHR that were not formerly on the list, but that the provider agrees are warranted. As the provider accepts any medications from the C-CDA into the EHR the medication comes over as discrete data with the sig. • Medications that the provider sees on the C-CDA, but	Reconciliation using discrete data via Direct can dramatically save clinicians time and patient lives and decreases costs.	1

	does not agree that the patient should be taking, would not be pulled over to the new list and would be part of the follow up discussion with the patient.		
TI12: Reconciliation of Active Problems	Active Problems: Following any patient care transition the C-CDA provided should include an active problem (ICD10/SNOMED) list. • For new patients, the recipient provider (or his or her delegate) should be able to pull this list directly into his or her EHR system. • For established patients, the recipient provider should be able to see onscreen a direct comparison of the problem list in his/her native EHR and be able to directly compare that list with the problem list that has been received in the C-CDA. The provider can them perform problem list reconciliation, discontinuing problems that have been superseded or are no longer part of the patient's active problems, or adding new problems to his/her EHR that were not formerly on the list, but that the provider agrees are warranted. • Problems that the provider sees on the C-CDA, but does not agree that the patient has, would not be pulled over to the new list and would be part of the follow up discussion with the patient. • Ideally, in the future, any ICD 10 codes pertaining to	Reconciliation using discrete data via Direct can dramatically save clinicians time and patient lives and decreases costs.	1

	behavioral health would be marked as such and the EHR would prevent these diagnoses to be shared in future C-CDA documents unless the EHR has on file a patient consent to release this information.		
TI13: Reconciliation of Allergies	Following any patient care transition the C-CDA provided should include a list of the patient's current/active allergies. • For new patients, the recipient provider (or his or her delegate) should be able to pull this list directly into his or her EHR system. • For established patients, the recipient provider should be able to see onscreen a direct comparison of the Allergies list in his/her native EHR and be able to directly compare that list with the Allergies list that has been received in the C-CDA. The provider can them perform Allergy reconciliation.	Reconciliation using discrete data received via Direct can dramatically save clinicians time and patient lives and decreases costs.	1
TI14: Reconciliation of Immunizations	Following any patient care transition the C-CDA provided should include a list of the patient's current/active immunizations (CVX Codes). • For new patients, the recipient provider (or his or her delegate) should be able to pull this list directly into his or her EHR system. • For established patients, the recipient provider should be able to see onscreen a direct comparison of the immunizations list in his/her native EHR (or other HIT system) and be able to directly compare that list with the immunizations list that has been received in the C-CDA.	Reconciliation using discrete data via Direct can dramatically save clinicians time and patient lives and decreases costs.	1

	The provider can them perform immunization reconciliation.		
TI15: Reconciliation of Procedures	Procedures and Operations (CPT Codes): Following any patient care transition the C-CDA provided should include a list of Procedures and Operations (CPT Codes). • For new patients, the recipient provider (or his or her delegate) should be able to pull this list directly into his or her EHR system. • For established patients, the recipient provider should be able to see onscreen a direct comparison of the Procedures and Operations (CPT Codes) list in his/her native EHR and be able to directly compare that list with the Procedures and Operations (CPT Codes) list that has been received in the C-CDA. The provider can them pull any new CPT codes into his/her EHR.	Reconciliation using discrete data via Direct can dramatically save clinicians time and patient lives and decreases costs.	2
TI16: Reconciliation of Laboratory Results	Following any patient care transition the C-CDA provided may include a patient lab tests and studies (LOINC codes). For new or established patients, the recipient provider (or his or her delegate) should be able to pull any new tests or studies directly into his or her EHR (or other HIT) system, where all of the native HIT system functionality, e.g. being able to create flow sheets, or graphing function will apply.	Reconciliation using discrete data via Direct can dramatically save clinicians time and patient lives and decreases costs.	2
TI17: Other Discrete Data	As standardized vocabulary use is enhanced in HIT systems these standardized vocabulary based data elements should	Reconciliation using discrete data via Direct can dramatically save clinicians time and patient lives. Additional use of	3

Reconciliation	be included in Direct Interoperability messages that can be reconciled across systems. Such data may include: social, family and medical histories, etc.	standardized vocabularies leading to EHR virtualization through reconciliation may also eliminate duplicate testing.	
TI18: Recipient (organization or user) Configuration of the Information Viewed From the Incoming Message (C-CDA)	Recipient edge systems have the ability to configure the information viewable from the incoming message. This configuration is available at the organization or user level. For example, if a discharge summary includes *all* of the hospitalization information, including every vital sign, every lab test and study, every Input and Output (Is/Os), etc. documented during the hospital stay the user can configure their view of the information such that they see only the first and last vital sign, first and last of any lab test and study, no view of Is and Os, etc. The information that is configured to be displayed is always presented to the user is a consistent standard fashion. The user also has the capability to easily drill down to view the other information that was received but not displayed if she or he so desires.	Allowing the user to configure their view of the incoming information facilitates the recipient user to efficiently view critical information for patient care and enhances the adoption of this technology. The drill down to all information on the fly allows the recipient user to access all information if their pre-configured view does not include information the user requires for patient care in an exceptional circumstance.	3

Recommendations for Clinical Messaging

Priority Legend

1	Required / Urgent / Now / Current-next version
2	Highly desired / Future priority / 1-2 years / Subsequent version
3	Advanced / Future development

Clinical Messaging			
Feature/ Function	**Recommendation**	**Rationale**	**Priority**
Outbound Message Functions			
CO1: Compose Message	User creates a patient-specific message to send to a Direct recipient.	Supports standard e-mail functionality, allows patient-specific information to be transferred from one HIT system to another, in support of patient-specific care coordination.	1
CO2: User Addresses a Message to a Direct Recipient	User enters and preserve a new recipient by entering their Direct address in the Recipient field.	Facilitates the end user's ability to send a Direct message to a Direct recipient of their choosing	1

CO3: Adding Attachments	End user adds attachment(s) at will to the message. These attachments will consistently be delivered with the message. Supported document types include structured data (C-CDA, Excel spreadsheets); unstructured data (Word, PDF, and plain text files) and image files (JPG and GIF).	Provides robust communication in support of patient care by being able to attach a variety of document types including but not limited to paper-based documents and clinical images.	1
CO4: Forward to Individual/Multiple Recipients	Recipient easily shares both the message and/or any associated attachments with other recipients as appropriate to the clinical situation.	Supports the Care Team approach to patient care by sharing information appropriately.	1
CO5: Reply	Recipient replies to the sender of a Direct message.	Enables efficient Direct communication.	1
CO6: Real Time Message Delivery	Direct messages are sent in "real time", rather than in batch processes.	Enables message recipient(s) to follow up quickly, thus supporting timely coordination and transitions of care.	1
CO7: Message Context	Both the sending and all recipient users are able to identify the message context. Context is established based on a standard list of contexts. All automated Direct Message templates (see TOC section) can have their context preconfigured as part of the template information. Context is determined from ADT fields and the Document Type. Reference Implementation Guide for expressing Context from ONC (http://wiki.directproject.org/file/detail/Implementation+Guide+for+Expressing+Context+in+Direct+Messaging+v1.0-DRAFT-2016122901.docx)	Identifying the context and having this visible to the message recipient helps to expedite patient care. It also allows for messages of specific context types to be routed to the appropriate recipient within the recipient's edge system.	1
CO8: Ability to Use All HIT	Any vendor-supported tools e.g. reconfigure the data, dictation tools, phrase generated auto-population, etc. that	Allows the end user to create a message on the fly using	2

System Vendor Supported Tools in Composing the Direct Message	exist within the source/edge HIT system can be preserved and used to populate the message.	the edge system's tools that s/he is accustomed to.	
CO9: User Maintains a Directory of Their "Favorite" Direct Recipients	User can configure and maintain a list of their "favorite" Direct recipients	Facilitates the end user's ability to efficiently send a Direct message to a Direct recipient of their choosing by populating and maintaining a personalized list of their frequent or "favorite" Direct message recipients	2
CO10: Multiple Recipient/CC	User sends Direct messages to multiple recipients, including standard fields of "To" and "CC".	Supports the inclusion of additional relevant members of the care team.	2
CO11: Distribution Lists	User creates, maintains, and utilizes patient-specific distribution lists.	Ensures that a single message can efficiently be sent to the patient's appropriate care team members and allows for maintenance of a patient's care team distribution list.	2
CO12: Send on Behalf	Staff member composes and sends a message on behalf of another individual with proper authorization and attribution.	Supports standard e-mail functionality. Improves efficiency of communication for clinicians working within a care team.	2
CO13: Failed Message Delivery/Receipt Notification	Sender is notified if a message cannot be delivered to, or is not received by, the intended recipient or their designee. System can also be configured to notify the sending end user of both successful or failed delivery if the end user so desires. The failed notification message includes a reason for the failure.	Sending user must have confidence that the Direct message was delivered to the intended recipient or their designee. Unless users can confidently know that a message was received was undeliverable, transition from FAX to Direct will be delayed. Failed delivery notification may be used by the sending organization to trigger troubleshooting or reconfiguration to facilitate future communications.	2

CO14: Sending User is Able to Configure the Level of Priority/Importance/Urgency of a Message.	End user composing the Direct message can indicate the level of importance of the message, for example: urgent, standard, non-urgent. This level of importance will be displayed to the recipient. Specification of level of importance for a given message is optional. Organization can configure that messages without a priority indication are sent as "standard" or without a priority	The end user will be able to indicate message urgency to recipient allowing the recipient to prioritize the messages that need to be read first. This level of importance can also be used to trigger additional functionality.	2
CO15: Reply All	Recipient replies to the sender of a Direct message and to one or more additional recipients of the original message.	Enables inclusion of team members on the original message.	2
CO16: Sending User Can Configure Message Receipt Notification Based on the Level of Importance/Priority they Indicated in an Outgoing Message	The sending end user can configure their message receipt notification "yes" or "no" or the timeframe for the notification based on the message level of importance. For example, urgent messages can be configured to always trigger a failed message receipt within 8 hours of sending.	The end user will be aware of any Direct message send failures alerting them of the need to use alternative method of communication, particularly in the event of urgent message send failures.	3
CO17: Read Receipt	Sender is notified once a sent message has been opened by the recipient. Sender can configure, within their system, the appropriate individual(s) or message pool(s) to receive the read-receipt message and a configurable timeframe to receive an "unopened" notification. The sending organization can also configure which messages require	Ensures knowing that a sent message has failed to reach a recipient and also knowing whether someone in the recipient organization has actually opened the message in a timely manner to be defined by the sender. This information can be critical in some clinical situations.	3

	read-receipt notification, and/or allow the sender to activate the read-receipt feature on the fly when sending a message. The read-receipt message will also include the name and role of the individual in the recipient organization who opened the message.		
CO18: Prevent the Forwarding of Information Specifically Protected by HIPAA, 42 CFR Part 2, or Other Applicable Statute	The receiving system is able to prevent the forwarding or re-sending of behavioral health, substance abuse treatment or other information as required by state and federal law, unless appropriate patient consents are documented.	Prevents the inappropriate distribution of patient information that would be in violation of existing law.	3
Inbound Message Functions			
CI19: Automated Patient Identification	All EHRs, HISPs and other applications receiving Direct messages automatically match incoming messages to the associated patient for patients already known within the recipient system. Only in the event that the patient is new or cannot be automatically matched (e.g., a new referral to a specialist in the closed loop referral use case, or patient identification information that is not clearly consistent with a single existing patient), the receiving system places the message in a work queue for manual matching or patient registration.	Patient matching must be automated to prevent impeding data flow to the intended recipient(s), potentially creating an unsafe and even life threatening situation for the affected patient. As Direct is more widely adopted to support TOCs and care coordination, requirements for manual patient matching places an unsupportable burden on staff time.	1
CI20: Message	Receiving systems allow the recipient to open and view a wide variety of content types received as message	Receiving systems must not strip attachments from the message and must be able to consume all supported	1

Attachments	attachments, including structured data (C-CDA, Excel spreadsheets); unstructured data (Word, PDF, and plain text files) and images (JPG and GIF files).	attachment types. The sender has included attachments deemed necessary for the recipient's optimal care of the patient; these must be consumable. This will increase the confidence that a sent attachment will be viewable by the recipient.	
CI21: Reliable Recipient View	All clinically relevant message components and attachments (e.g. sender, intended recipient, CC'd recipients, message subject, message body text, message Context, and attachments) display reliably to the receiving end user in a personal in box. In addition, the content of standard documents, e.g. the C-CDA, is displayed in a standardized format so that the user can become familiar with the location of information in the document.	The inbox as access point for all data relating to the patient creates efficiency and improves the chance that all the information will be reviewed.	1
CI22: Standardized Use of Discrete Data	Standardized data vocabularies are included in a uniform fashion to support transmission of discrete data. These should include problems, allergies, medications, immunizations (PAMI), and procedures (CPT). Codified data flagged as protected by regulation pertaining to behavioral health and/or substance abuse treatment services can be blocked from sharing unless an appropriate consent is in place.	Standardized vocabulary creates tremendous care and documentation efficiencies and prevents transmission error data entry, thus permitting an exceptional end-user experience.	1
CI23: Recipient is Able to View the Sender's Indicated Message Priority	Recipient can view the message priority that had been designated by the sender and can prioritize their workflow based on this information	As clinicians frequently experience information overload this feature allows the recipient to prioritize their incoming messages	2
CI24: Incoming Message	Receiving systems provide the ability to configure real time "You've got mail" notification regarding the receipt of a	Recipients must be spared the need to constantly check	2

Notification	Direct message to the recipient, e.g., to a specified email or text messaging account. This notification excludes PHI.	their application for new messages.	
CI25: Message Routing Based on Context	All messages include Context Meta Data (e.g. discharge, referral, care coordination, etc.). Receiving systems support configurable routing based on message Context and Patient ID to the appropriate designated user within the organization. This routing includes the following functionalities: 1. The ability for a recipient to designate another individual or a work queue to process some or all of their messages on their behalf 2. The ability to write message handling rules to enable auto process (e.g., CC or forward) messages based on sender, context, patient, or subject to another individual or to a work queue for processing.	Auto-routing of messages increases efficiency of care coordination, decreases clutter in the provider's inbox, thereby increasing usability and adoption of Direct messaging.	2
CI26: Notification of Inactive Recipient	If a Direct address is inactive, that information is conveyed to the sender and the sender's HISP as part of the notification that their message was undeliverable.	Notice of inactive status bypasses the difficulty associated with maintenance of current knowledge of clinical affiliations so long as provider directories are not synchronized between clinical organizations and HISPs.	2

Recommendations for Administration

Priority Legend

1	Required / Urgent / Now / Current-next version

2	Highly desired / Future priority / 1-2 years / Subsequent version
3	Advanced / Future development

Administration			
Feature/ Function	**Recommendation**	**Rationale**	**Priority**
Administrative Functions			
A1: Any Clinical User May Have a Direct Account	Clinical Users have full individual Direct messaging capability regardless of whether they have an NPI, e.g. Care managers, specific nurses, etc. may have their own Direct account.	Utilization of secure clinical messaging for case managers, care coordinators, social workers, therapists, etc. is foundational for team care of patients.	1
A2: Locations and Departments May Have Direct Accounts	Organizations have the capability to create departmental and location based Direct account to send and receive messages (e.g. messages intended for HIM, the ED, Admitting, incoming referrals, and other messaging to specific clinical departments) in addition to accounts for individual clinicians.	Utilization of secure messaging promotes patient care by other than clinicians.	1
A3: Standard Request for Patient Summary Information	A standard message exists to request information (e.g. standard C-CDA patient summary), to specify the modality to send the response (e.g. Direct message vs. Fax), and to state where to send it (i.e. Direct address or Fax number).	Direct can be used as a query-based exchange to request a "pull" of patient information for Indirect Interoperability. For example, for a patient being treated in the ED, the ED could query the patient's PCP's EHR for information and receive an automated response with a patient summary C-	2

		CDA.	
A4: Configuration Based on Organization or Individual Preferences	Organizations can select to allow configuration at the organizational level, user level or both.	Flexibility for message configuration either based on the organization or on the individual, within organizations diminishes burden on all users while allowing for user preferences, if they exist.	2
A5: Automated Updates to Provider Directories	Organizations can configure their HIT system to automatically add, update, or remove provider records in a local, regional or national Provider Directory. Such changes would happen in response to adding new users to the HIT system, making changes to a user's information (e.g. Direct address, name, specialty, etc.), or removing a user's access to the HIT system.	Addressing and sending Direct messages is dependent on accurately knowing how at reach a desired destination. Local, regional and national Provider Directories help in this endeavor by providing a single source of addressing information for users from multiple organizations. This "phone book", however, is only as useful as the accuracy of the addressing information that it holds. Users constantly join new organizations or leave organizations, making it easy for Provider Directories to house obsolete data. By enabling the automated updating of Provider Directories directly from HIT systems as users come and go or change their names (e.g. through marriage), Provider Directories and Direct messaging can be most reliable. There are existing standards that should be leveraged for this functionality.	2
A6: Customizable Request for Information	When a user is sending a Direct message to request information they can request specific information as their HIT system includes a configurable multi-select pick list to indicate the information that is being requested.	Facilitates receiving the specific information needed to most efficiently and effectively care for the patient.	3

A7: Ability to Manage Authorizations for Information Requests	When a user is sending a Direct message to request information, they can identify missing authorization requirements from the record holder. Upon receiving these requirements, the record requester can obtain the necessary authorization from the patient and assert back to the record holder that they have obtained this authorization.	The organization that holds a patient's record is required to ensure that the appropriate patient authorization has been obtained to satisfy local, state and federal laws. These authorizations may not be applicable to a particular release, or may have already been obtained in advance from the patient. However, in all other cases, a requestor of information would need to assert that patient authorization was obtained in order to get copies of the record. Not knowing what specific authorization requirements are for the record-holding organization, there needs to be a mechanism to request and assert authorization requirements. This functionality should leverage existing and evolving standards, such as those being developed by Carequality.	3