

Alliance Clinical Content Standards

Design Considerations

Here are some key design topics of Alliance Clinical Content that you should consider early and often in the content development process.

Users & Stakeholders

- Identify the content's primary users and stakeholder groups.
- Users = Who will be actively using the content.
- Stakeholders = May not be actively using the content, but may be using the deliverables of that content (i.e., data, text of the note, interdisciplinary communication, etc.)
- *Example:* This form will be used by providers, but the information that appears in the note will be used by HIV Case Managers. The data from that form will be extracted out by our Reporting Team for our Ryan White data reporting.

Workflow

- Identify the workflow(s) where the content will be used.
- In some cases, you may also be developing a new workflow with a revised/new content design.
- Workflow is SO important, because the content will need to mesh well and fit with the patient care workflows that will be conducted. If it doesn't work in the workflow, the content will not be successful.
- *Example questions*
 - What is the purpose of the content?
 - What will the users want to achieve with the content?
 - What needs to be documented?
 - What needs to be communicated?
 - What decisions are being made?
 - What information needs to be presented?

Disposition

- If the form is based on a paper document, identify not only what information is written on the document but also what happens to the paper form after it is filled out. This includes what is communicated or routed to other parties downstream, after the paper document is completed.
- If the form you're designing is based on a paper form, try to get at least three different examples of the filled-out form. Reviewing the information typically recorded on the form helps you understand what information will need to be translated to a workflow using the Electronic Health Record System (EHRS).
- For adhering to HIPAA regulations, hide any information that is considered Protected Health Information (PHI) on the paper documents.

Form Title

- The form's title should accurately describe its purpose, whether the form is used for diagnostic purposes or for post-exam documentation.
- Titles can be up to 30 characters.
- Avoid using abbreviations or acronyms unless necessary or for saving real estate. If you use must use an abbreviation, make visible the full name within the header of the form.

Tab Names

- Forms allow for multiple tabs to appear, with each tab having a unique name.
- Tab names can be up to 30 characters, but make sure the name fits on the page tab so that each tab's full name can appear without the user having to scroll or click to see the name further.
- The size of the tab varies according to how many tabs are in the form and the name of the tab with the most number of characters.

Grouping

- Group related items together.
- To determine what items are related, refer back to the workflow where the content will be used and the users that will use the content. That information will help you determine what "makes sense" to be grouped together.

Visibility

- You can make items appear on your form only when certain conditions are met by using visibility regions.
- Determine whether the content needs visibility regions by refer back to the workflow where the content will be used and the users that will use the content. If the workflow or the users dictate that something commonly happens "if xxx" – where it's only for a certain clinical scenario – that usually is an indicator that a visibility may be useful for that scenario.
- *Example:* Only have the Last Menstrual Period field appear if the patient is female.

Navigation

- You have flexibility in determining how a user navigates within clinical content. Options include...
 - Navigate within a form, tab by tab
 - Navigate amongst separate forms, using the Previous or Next Form buttons to advance to the next form in the encounter
 - Jump from form to form, regardless of the order the forms are in the encounter, by clicking on the Form Title
- As a result, determining what needs to go on a specific tab or form depends on knowing how the user may navigate through the entire encounter.
- In many cases, you can avoid multi-tab forms by breaking long forms into several, short forms. In other cases, multi-tab forms are appropriate for some uses where the user wants all the information accessible within one form (i.e. the "Physical Exam" form).

Columns

- If your form items don't take up much horizontal space, you may want to put them in two or more columns.
- Columns should play into the intuitive navigation of the entire form. Be mindful of the grouping of information within the form and how the user will navigate from left-to-right and top-to-bottom in the form.
- When considering columns, think of the grouping of the information, the aesthetics of displaying information in a column, and the user workflow!

Headings

- Use headings to set off sections and subsections and to clearly indicate the purpose of a group of form items. This is useful both in the display of the content AND the text of the note created from the content.
- For the text of the note created from the content, you can suppress printing of the heading on the chart note if items underneath that heading are not used or completed.

Instructions

- Sometimes the design of the form will require instructions or help text to increase knowledge and efficiency in using the content at hand.
- Determine whether to use instructions based on what the users find to be confusing, where they want more information, or they feel that the workflow dictates some help.
- Instructions should only be used sparingly. If the content is needing multiple instructions within the design, that may be an indicator that the design needs to be improved.

Multi-item rows

- You can specify a number of items that should appear next to each other horizontally.
- See the topic of Grouping to determine whether items should appear next to each other.
- *Example:* creating a row of action buttons that jump you to clinical references that you may want to use when taking care of the patient.

Usability Principles

Here are some key usability topics of Alliance Clinical Content that you should consider early in the content development process. These are based on industry recommendations for increasing usability in healthcare IT tools and specifically with EHR design.^{1,2,3,4}

Simplicity

Does information presented seem uniform and organized, or chaotic? Simplicity refers to having a lack of visual clutter and concise information display. Simplicity is difficult to achieve as the more complex a task becomes, the more important it is to maintain a sense of simplicity. Think of a "less is more" philosophy while assessing this principle.

Naturalness

The flow of information in the form should match the internal thinking of the user. Forms with a foundation of naturalness seem immediately easy to use and manipulate. An automatic sense of "familiarity" is sought after.

Consistency

This principle has two considerations: external and internal consistency...

- *"Internal" consistency* – How well the form uses concepts, behaviors, and appearances consistently throughout its screens/layout.
- *"External" consistency* – How well the form's structure and interactions match the user's experience with other forms or clinical content.

Minimizing Cognitive Load

This principle of usability asks how well the form seems to avoid mental interruptions. For example, does the form provoke many thoughts such as "how do I..." or "What does this do..."? Time and energy needed to think about difficult concepts should be saved for patient care, not on how to use the form. An ideal form has a low cognitive load so that the user can save their mental capacity on the clinical picture.

Efficient Interactions

This principle refers to how concisely information is displayed, entered, and documented. Key aspects include minimizing the amount of required work to achieve a task and providing shortcuts when possible.

Forgiveness and Feedback

This area describes how well the design of the form allows the user to explore options and features without a fear of harm or "getting lost". The user should not feel nervous or intimidated of creating errors while learning the form. The feeling of "I can't figure out how to go back" if a change is required should be minimized.

Effective Use of Language

This principle refers to the use of concise, unambiguous terminology in the form. Language should be congruent with what is familiar to the user. All CAPS writing is to absolutely minimized or not used at all. All text should be thought through to reduce "information overload".

Effective Information Presentation

This principle covers three main topics...

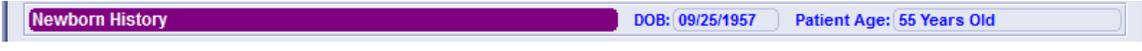
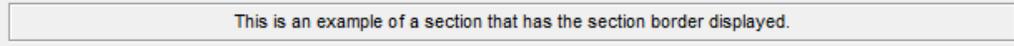
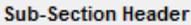
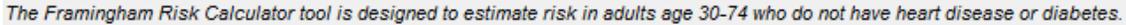
- *Appropriate Density* – The time spent searching for information on a display and the degree of user errors increases as the amount of information displayed increases. Balancing out relevance in what is displayed with the amount of real estate you have for a user interface is the key focus of this topic.
- *Meaningful Use of Color*
 - Colors are used to transmit messages. They are one of the few tools that incorporate thoughts/actions without words and should be used appropriately. Common meanings conveyed with color include:
red = danger **blue** = cold or advisory
green = go or safe **yellow** = caution
 - In addition, a second form of color differentiation, "redundant encoding", (such as fill pattern, bold font, or font characteristics) should also be used to accommodate the colorblind.
 - Adhering to color norms of meaning increases naturalness and uniformity.
- *Readability* – The ability to scan information quickly while understanding at a high level what that information means.

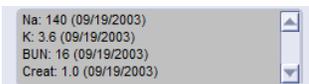
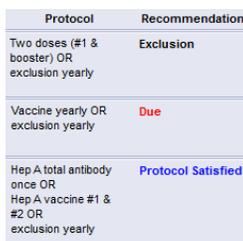
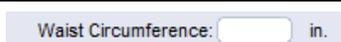
Preservation of Context

This principle involves keeping the form as transparent as possible. Screen changes and visual interruptions ought to be kept to a minimum. Basically, you do not want to feel like your eyes are constantly volleying back and forth or up and down. Similar to reading a page out of a book, your visual context should follow a natural order (left-to-right, top-to-bottom). This aspect of usability also refers to how "direct" a form is. Changes made by the user in the form should be immediately visible onscreen.

Alliance Standards

Please see below for how specific types of functionality are presented in Alliance Clinical Content.

Item	Font Characteristics	Notes
Form Title Banner	White font with Purple background; Arial; 9 pt; Bold; Left-aligned; 16 pixel height; all words capitalized; No CAPS; separate section border for banner, with border visible. DOB and Patient Age displays <ul style="list-style-type: none"> Blue font with transparent background, label Right-aligned, field Left-aligned, all Bold Age: PATIENT.FORMATTEDAGE 	
		
Section	<ul style="list-style-type: none"> Border visible unless borders cause distracted density. 	
		
Section Header	Blue, Arial, 8pt, Bold, Left-aligned	
		
Sub-Section Header	Black Arial 8 point. Bold	
		
Instructions/Help Text	Black Arial 8 point italic. Help text must be grammatically correct.	Don't enclose instructions in parentheses ().
		
Single Item Label	Black Arial 8 point; Right-aligned	
Radio Button Check Box Listbox	Black Arial 8pt. No CAPS usage.	Use capitalization based on: how it reads in the note, data requirements for extraction, and clinical preference.
Drop-Down	Black font with white background, Arial, 8pt. No CAPS usage.	Use capitalization based on: how it reads in the note, data

		requirements for extraction, and clinical preference.								
Edit Field	Black font with white background, Arial, 8pt.									
Multi-Line Edit Field text	Black font with white background, Arial, 8pt.									
										
Data Display	Black font with light grey background, Arial, 8pt.									
										
Clinical Protocol Recommendation Displays	<p>Protocol Satisfied</p> <ul style="list-style-type: none"> If the patient met the criteria Blue, 8 pt font, bold <p>Due</p> <ul style="list-style-type: none"> If the patient met the criteria Red, 8 pt font, bold <p>Exclusion</p> <ul style="list-style-type: none"> If the patient met the criteria Black, 8 pt font, bold 									
 <table border="1"> <thead> <tr> <th>Protocol</th> <th>Recommendation</th> </tr> </thead> <tbody> <tr> <td>Two doses (#1 & booster) OR exclusion yearly</td> <td>Exclusion</td> </tr> <tr> <td>Vaccine yearly OR exclusion yearly</td> <td>Due</td> </tr> <tr> <td>Hep A total antibody once OR Hep A vaccine #1 & #2 OR exclusion yearly</td> <td>Protocol Satisfied</td> </tr> </tbody> </table>			Protocol	Recommendation	Two doses (#1 & booster) OR exclusion yearly	Exclusion	Vaccine yearly OR exclusion yearly	Due	Hep A total antibody once OR Hep A vaccine #1 & #2 OR exclusion yearly	Protocol Satisfied
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Two doses (#1 & booster) OR exclusion yearly	Exclusion									
Vaccine yearly OR exclusion yearly	Due									
Hep A total antibody once OR Hep A vaccine #1 & #2 OR exclusion yearly	Protocol Satisfied									
Tab Label	All words capitalized.									
										
Units of Measure	Black Arial 8 point, left-aligned to the data field. Not capitalized unless unit requires it.									
										

Version Management	<p>Light grey text with transparent background; Arial 8 pt. Separate section. No visible section border. Displays only on first tab of form.</p> <p><i>In the following format:</i></p> <ul style="list-style-type: none"> • Left-aligned: v#.## - version date: mm/dd/year • Right-aligned: Alliance of Chicago Community Health Services, L3C 	
v1.10 - version date: 05/21/2012		Alliance of Chicago Community Health Services, L3C

Action Buttons

Button Type	Use & Definition
Jump Button (White Font with Blue Background)	<p>Jump to a Web page Jump to a PDF file Access Centricity Clinical List Functionality (Problems, Medications, Allergies, Orders, etc.)</p>
Record (white on brown)	Commit information to an observation term manually.
Calculation (white on bluegreen)	Perform a calculation (i.e. pounds to kilograms)
Sign (Black Font with Turquoise Background)	Insert the user's name, datestamp, and timestamp into the field and the text of the note.
Clear (white on dark grey)	Clear any entries from the specified field(s)
Print Handout (brown on transparent)	<p>Print a specific Handout Access a specific Handouts Custom List</p>
Add Diagnosis (blue on white)	Add a diagnosis to the patient's Problem List
Update (blue on yellow)	Actively update information where information from previous documentation was present and was reviewed by the user.
Normal (Blue on light grey)	Document a "normal" value for a physical exam or clinical exam finding.
Previous (Black on light grey)	Document the same value as previous for a physical exam or clinical exam finding.

References

1. Healthcare Information and Management Systems Society (HIMSS) EHR Usability Task Force. (2009). Defining and Testing EMR Usability: Principles and Proposed Methods of EMR Usability Evaluation and Rating. HIMSS. Accessed November 7, 2012, from http://www.himss.org/content/files/himss_definingandtestingemrusability.pdf.
2. Alliance of Chicago Community Health Services. (2012). Alliance Usability Testing Survey [internal organizational document].
3. Schumacher, R.M., Lowry, S.Z. (2010). NIST Guide to the processes approach for improving the usability of electronic health records. United States Department of Commerce & National Institute of Standards and Technology. Accessed September 20, 2011, from http://www.nist.gov/itl/hit/upload/Guide_Final_Publication_Version.pdf.
4. Corrao, N.J., Robinson, A.G., Swiernik, M.A., Naeim, A. (2010). Importance of testing usability when selecting and implementing an electronic health or medical record system. *Journal of Oncology Practice*, 6(3), 120-124. Accessed September 20, 2011, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2868635/pdf/jop120.pdf>.