

#### 4. Usability requirements

Usability		
Simplicity in the navigation and organization of the contents.		
Requirements	Associated questions	Equivalence with HL7
<p>The EHR should be organized with the user, their goals and needs in mind. In reality, the EHR must be patient centered. The user must find the <b>view</b> or presentation that best suits their role (professional profile) and tasks, for example:</p> <ul style="list-style-type: none"><li>• Administrative function, in some cases identification and citation, in others identification and transcription of report etc.</li><li>• Internist. Clinical function. Tasks: identification, registration information, processing information, accessing information. Medical Orders. Etc.</li><li>• Medical Microbiologist. Clinical function. Identification Access to clinical information. Registration of information. Validity of results, etc.</li></ul>	<ul style="list-style-type: none"><li>• Does the system's user interface show precisely and completely what content or services are offered?</li><li>• Is any mechanism provided for contacting the Help Desk, or support for credential issues, detected errors, etc.?</li><li>• Is the EHR patient-centered? (patient-centered means that all patient information is linked to that patient and it is not necessary to access different places (at least not the user) to have the information and record it). For example, to access an RX report I do not have to go to the RIS, it is in the history, the same as for the prescription of medicines, I do not have to go to the electronic prescription, or to access a clinical analysis report I do not have to go to the LIS.</li><li>• Is the EHR view oriented to the user's profile?</li></ul>	

## Usability

### Simplicity in the navigation and organization of the contents.

Requirements	Associated questions	Equivalence with HL7
The navigation system must be clear and easy to locate.	<ul style="list-style-type: none"><li>• Are the contents organized in an intuitive way? Are the contents organized according to the care processes that are the object of the user's activity?</li><li>• Is the title of the screens clear and can the user easily know what information they will find on the screens?</li><li>• Does the navigation menu always stay in the same place throughout the navigation through the different screens of the user interface and does it behave in the same way?</li><li>• Are the links easily recognizable as such? Does its characterization indicate its status (visited, active...)?</li><li>• Are there <b>navigation elements that guide the user</b> the user about where they are and how to undo their navigation (such as breadcrumbs, links to the home page, a wizard, etc.)?</li><li>• Are the lists of values clear and unambiguous?</li></ul>	

Effective interaction		
Requirements	Associated questions	Equivalence with HL7
The system must offer a simple navigation, minimizing the steps that the user must perform to execute the different functionalities.	<ul style="list-style-type: none"> <li>• In general terms, can the number of clicks the user has to make to access each task from the start be considered excessive considering the logical steps for the action to be performed?</li> <li>• Does the system offer frequently used navigation options, shortcuts to more relevant content or for more advanced users?</li> <li>• Does the navigation in the system minimize user movements, such as paging, scrolling to get to content, or frequently switching between entering data and clicking the mouse?</li> </ul>	

Design		
Requirements	Associated questions	Equivalence with HL7
The <i>look &amp; feel</i> and objectives must be appropriate for the EHR. The design should be consistent across all screens.	<ul style="list-style-type: none"> <li>• Does the design remain consistent and uniform (structures, colors, typography...) on all screens?</li> <li>• Is it a simple interface, with the necessary information for the user to perform the task without noise or visual distractions?</li> <li>• Does the design include the necessary elements to highlight relevant content, shortcuts, actions, etc.? For clear and understandable icons, banners or images are used to attract the user's attention, etc.</li> <li>• Graph of constants or other parameters</li> </ul>	

Consistency		
Requirements	Associated questions	Equivalence with HL7
<p>Language should be clear and precise. Use the same language as the user. The design elements must have a uniform and homogeneous use, location and behavior throughout the system.</p>	<ul style="list-style-type: none"> <li>• Is the EHR in the same language or does it use local jargon concepts that are familiar from where it is implemented?</li> <li>• Do you use clear and concise <b>clear and concise</b>?</li> <li>• Are the terms used consistently (do they always mean the same thing on different screens)?</li> <li>• Are the various design elements of the application or system treated consistently across all screens? They are always in the same place, mean the same thing on every screen, etc.</li> </ul>	

Help and error prevention		
Requirements	Associated questions	Equivalence with HL7
Language should be clear and precise. You must use the same language as the user.	<ul style="list-style-type: none"> <li>• Is the <b>link to the Help section</b> placed in a visible and "standard" scope?</li> <li>• Is help offered in understanding the contents and actions to be performed such as tool tips, help texts or information texts?</li> <li>• Is contextual <b>help</b> in complex tasks? For example, it helps with coding</li> <li>• Are the error messages clear and descriptive so that the user can understand without doubt what was the reason for the error, what erroneous action causes it?</li> <li>• Does the EHR system have a feature that checks for certain information to prevent errors? For example, medication dosage, duplicate identification elements (surname and first name and ID number, or other), administration check with dispensing and with prescription of medication, with patient. Five correct: Patient, medication, dosage, route, time.</li> </ul>	

Feed-back and analytical information (Control and feedback)		
Requirements	Associated questions	Equivalence with HL7
<p>The user should always be informed of what is going on and get feedback on their actions.</p> <p>You should also be able to have consolidated information from your own work available for analysis, without having to ask someone else for it. For example, to be able to know how many inpatients I have seen, or consultations. More important to be able to analyze the results qualitatively and quantitatively.</p> <p>For example, when monitoring a patient, a good EHR allows the doctor, or nurse if applicable, to see the time sequence of vital signs or other data in graphs. In this way, at a glance, they know the evolution of the patient in relation to this specific data. So, they know if the tendency is to raise the glycated hemoglobin or blood pressure, if it is stable, or even improving.</p>	<ul style="list-style-type: none"> <li>• Is the user constantly informed about <b>what is happening</b>?</li> <li>• When an <b>error</b> appears is the user informed in a clear and not in an exaggerated alarmist manner of what happened and how to solve the reported error?</li> <li>• Can the user cancel or edit their actions when it makes sense to allow it?</li> <li>• Does the user have analysis tools for their own information?</li> <li>• Is tracking information provided to the user?</li> <li>• Is this information presented in easily understandable graphs?</li> <li>• Is this information provided by dynamic graphics?</li> </ul>	

Minimizing the need for user interpretation		
Requirements	Associated questions	Equivalence with HL7
It should not be necessary for the user to mentally add information that is presented on different screens, or to perform simple calculations outside the application.	<ul style="list-style-type: none"> <li>• Is the information needed to perform a particular action or function presented on a single screen and is it not necessary for the user to navigate and recall information presented on multiple screens?</li> <li>• Are the alerts presented to the user concise with clear actions and are they appropriate in number and when they are presented to the user?</li> <li>• For simple calculations, does the application perform them automatically so that the user does not have to do them?</li> </ul>	

