Q: What is EHR?

A: The Indian Health Service Resource and Patient Management System (RPMS) Electronic Health Record (EHR) is a suite of software applications designed to improve quality of care and patient safety in I/T/U facilities. It provides a graphical user interface (GUI) "front end" to the robust RPMS database, which permits improved access to important clinical information, direct entry of data by clinicians and other users, and clinical decision support tools at the point of care.

[back to top of page]

Q: What is VueCentric?

A: VueCentric is the proprietary name of the graphical user interface (GUI) that permits facilitated data exchange with the full range of RPMS clinical applications. Based on the GUI in use at Veterans Health Administration (VHA) facilities, VueCentric incorporates additional functionality that increases its relevance to the Indian Health Service. Owned by Medsphere Systems Corporation, VueCentric is licensed for use throughout the I/T/U system.

[back to top of page]

Q: Why not just install the VHA CPRS system?

A: There are many similarities between RPMS and the VA's VistA system. Many RPMS applications originated in VHA and have been adapted for use in IHS. However, much of RPMS was developed specifically for the Indian health care system. In particular, the Patient Care Component (PCC) is the core data repository for encounter data in IHS, and there is no analogous feature in VistA. Because the underlying database is so different, the VA's graphical user interface (CPRS) is not compatible with RPMS. The current EHR interface, which runs on the VueCentric Framework application, has been specifically configured for RPMS, and many components were written just for our system. It has been, and continues to be, designed to facilitate care in the IHS/Tribal environment and to capture data that we need for our national reporting (GPRA, suicide, etc.), which is different than that needed in the VA.

[back to top of page]

Q: Why don't we buy a commercial electronic medical record application?

A: Many commercial off-the-shelf (COTS) electronic medical record products are available, and the argument could be made that IHS should be investing in one of these rather than developing its own. The most obvious barrier to COTS acquisition is cost, but this pathway has not been chosen for a number of other reasons as well.

First, the RPMS system has been developed to meet the specific data needs of Indian health care facilities. Adopting a different database would require considerable programming in order to ensure continued collection of clinical and public health data that are critical both for performance evaluation and funding. If the decision were made to retain the existing database but use a COTS EHR, many interfaces between RPMS and the COTS application would need to be written. Every time an update to either system occurred, these interfaces would need to be reprogrammed.

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[back to top of page]

Q: If we don't run the GUI, will we still have an EHR?

A: Many elements of a fully capable EHR are already in place at I/T/U facilities, in the form of the various RPMS applications (registration, scheduling, pharmacy, laboratory, etc.). The Text Integration Utility (TIU) can be installed to create a note-generating capability. However, anyone familiar with the classic RPMS "roll and scroll" user screen interface knows that the majority of clinical users will not put up with the limitations of this environment for data entry and results retrieval. The graphical user interface provided by EHR integrates all the required functions into a visually familiar, intuitive, and usable electronic medical record.

[back to top of page]

Q: What happened to IHS Patient Chart? Isn't that an EHR?

A: IHS Patient Chart was released in December of 2001. Patient Chart provides a graphical interface to RPMS data, greatly facilitating the ability to retrieve information such as lab results, problems, appointments, and so forth. Particularly useful features of Patient Chart include the ability for providers to directly and quickly add and modify entries to the PCC problem list, and to display and graph measurements and lab results in a way that facilitates patient education.

Currently, the majority of Patient Chart end-users are behavioral health providers. A behavioral health component, which offers BH clinicians a graphical interface to the data entry module of the RPMS Behavioral Health System (BHS), was released in Patient Chart in January 2004. This component was well received by the BH provider community and continued development and maintenance of Patient Chart is driven primarily by the needs of these users. The BH component is a fully functional electronic record specific to the needs of behavioral health providers and patients but Patient Chart cannot be considered a true EHR. It does not offer order entry (except for laboratory tests) or primary care or other non-BH visit documentation capabilities. Nevertheless for the BH provider, Patient Chart is an outstanding application, simple to install and intuitive to use.

[back to top of page]

Q: OIT maintains that I/T/U sites should use PCC+ for well child care. Can you tell me more about the PCC+ Well Child Care Module?

A: The new version of PCC+ will include a Well Child Module that is intended to standardize well child care in the IHS and lay the groundwork for inclusion of well child care age-specific guidelines and reminders into the EHR application. The WCM leverages the power of information technology and automated decision support in two specific ways to:

- Capture and encapsulate data gathered during well child care encounters that previously was only collected piecemeal over an extended amount of time.
- Customize and present age-specific guidelines and reminders to the pediatrician

at the time of encounter.

Several other validated screening tools exist such as the Arizona PEDS® instruments used by pediatricians in Arizona. New autism screening tools (i.e. mCHAT®) are also becoming available. We intend to add these screening options to future versions of the WCM.

Here is more information on the WCM. [DOC-42KB]

[back to top of page]

Q: I am a Behavioral Health provider. Can I use EHR for my records?

A: Behavioral Health programs in IHS have used the RPMS Behavioral Health System (BHS) for complete electronic documentation of BH visits for a number of years. BHS is available in typical RPMS "roll and scroll", or in a graphical interface version (IHS Patient Chart). The behavioral health database is separate from PCC, although the system can be configured to pass BH diagnoses to PCC. This integration of behavioral and medical information supports coordinated care and improved health outcomes.

At EHR sites, many behavioral health providers would like to document their visits in EHR, taking advantage of the improved access to information, TIU note templates, and electronic order/prescription entry. At present, behavioral health visits entered into EHR do not populate the behavioral health system database, which can affect case management and workload reports. However, a project is underway to allow BH data entered through EHR to pass to the behavioral health system. Once released, this feature will allow BH providers the flexibility to enter visit data into any of the three applications. Certain features unique to the BH applications, such as treatment planning, group visits, and administrative entry will continue to be documented through the BHS or Patient Chart.

Behavioral Health programs are reminded that the export process for BHS data is separate from PCC, so submission of behavioral health information, including suicide reporting data, to Areas and national programs requires regular exports from the Behavioral Health System.

[back to top of page]

Q: What's wrong with paper records?

A: Here are a few issues with paper records, and anyone who works with them could think of more:

- Only one person can have the chart at a time
- Keeping track of chart location is difficult
- Delays in retrieving charts are common and aggravating
- Handwriting is often illegible
- Charts may be disorganized, with information hard to find
- Some information doesn't get into the chart for many days
- There aren't enough tabs for all the different types of forms
- Many trees are sacrificed to print encounter forms and health summaries for each

visit
- Charts get very fat
- Metal tabs break, and the charts fall apart
- New volumes don't contain important old information
- Back injuries from lifting charts have resulted in worker compensation claims
- Paper charts that are left sitting around can easily be browsed by unauthorized people
- Charts may be stolen or tampered with
- Paper filing is time consuming and labor intensive
- Chart files take up a lot of valuable space
- Charts have to be retired just to save space

[back to top of page]

Q: Do we still have to pull the chart?

A: Yes, at least at first. The paper chart will continue to contain historical information of use to providers for some time. However, it is likely that after using EHR for 1-2 years providers will realize that they are not opening the paper record very often, and the facility will adopt a policy of pulling the record only upon request. In the short term some paper will continue to be part of the patient chart in the form of discharge summaries, consult reports, ER visits, and other outside records, as well as internally generated paper such as EKG tracings. Ultimately, EHR will include a document scanning and storage component that will provide electronic access to these records as well, leading to a truly paperless record.

[back to top of page]

Q: Do we have to print out notes and put them in the chart?

A: No. Certainly if some providers are using EHR and some are not, the latter may want to have electronically generated notes in the paper chart. However, this is time consuming, labor intensive, and unnecessary. Even those providers not using EHR to create notes can access the system to read them, and being encouraged to do this increases the provider's comfort and facility with the system.

[back to top of page]

Q: What about retention and storage of electronic records?

A: Currently, IHS has not yet developed an electronic records management disposition schedule to store health information contained in the EHR as it does for the paper record. If a patient record becomes inactive (usually after 3 years of inactivity), the health information should be printed out, filed into a folder, and sent to the appropriate Federal Record Center for storage or archive. This shall remain the procedure for archiving health records in an electronic format when it becomes inactive until IHS develops a disposition schedule approved by the National Archivist.

[back to top of page]

Q: What about privacy and security of electronic records?

A: Computer security is no less important in the EHR than it was before. Only authorized users should be given access to EHR, and the level of their access must be consistent with their role. Strong policies for computer security, and enforcement of these policies, will continue to be needed. Users who have to tape their password to the bottom of the keyboard because they can't remember it probably shouldn't be given one in the first place. With this in mind, however, it is important to consider EHR security in the context of the current situation, i.e. security of paper charts. It is not difficult to understand that EHR security is considerably better.

[back to top of page]

Q: What will happen to Health Information Management/Medical Record jobs?

A: It is expected that EHR implementation will result in changes in some duties within the Health Information Management (HIM) department, but changes in staffing levels, if any, will come relatively slowly. The immediate impact of electronic record implementation will be a reduction in the amount of paper filing, particularly laboratory results and encounter notes. Eventually these documents will be scanned into the system and viewed as images, but this process itself will be labor-intensive and require staff. Facilities should develop policies on pulling paper records and scanning documents into the EHR. HIM professionals in EHR facilities will not need to pull (or search for) as many charts, as providers become comfortable addressing lab results, responding to telephone calls, and even seeing patients without the chart. Other more important HIM functions will not change, such as responding to release of information (ROI) requests from outside or sending out locally generated ROI requests.

[back to top of page]

Q: I work in data entry. What about my job?

A: The RPMS-EHR allows for entry of the full range of RPMS data to be done by clinical users. For example, vital signs, measurements, and immunizations are entered by nurses, purpose of visit, problem list, and coding (ICD-9 and CPT) by providers, and patient education by a variety of other users. Another impact of EHR on data entry staff is the transition from data entry to data analysts, auditing and coding. Because most of the data entry functions currently being performed would have been done by the time the visit reaches HIM department for coding in the EHR environment, the need for data entry staff will reduce while that of coding, analysis and auditing will increase. It is expected that current data entry staff would be re-trained for these emerging new HIM functions. For sometime during the transition period from paper to EHR, there will still be an existing need for data entry backlog resolution, error report management, review of visits in the coding queue, and data entry for non-electronic encounters, particularly those occurring during EHR system down time and where necessary, entries of information received on paper from non IHS facilities.

[back to top of page]

Q: How can EHR help improve patient safety?

A: One of the main reasons that there is such a big national movement toward electronic medical records is the increasing evidence that they improve patient safety. The problem of medical errors has received much attention in recent years. It turns out that the majority of errors can be attributed to illegible or incorrectly interpreted handwritten orders, to inadequate or incomplete information about the patient, or to knowledge gaps about appropriate treatments or standards of care.

The most important contribution that EHR makes to patient safety is computerized provider order entry (CPOE). By entering orders, especially medication orders, directly into the system, errors caused by illegibility or incorrect copying can be virtually eliminated. The system allows automated checks for allergies and drug-drug interactions, and includes a comment field that providers can use to clarify new or changing medication orders.

By making clinical decision support available at the point of care, EHR can improve compliance with guidelines and standards of care. EHR can provide patient- and disease-specific reminders, notifications about critical results, and access to a variety of Web-based clinical information and decision support resources.

[back to top of page]

Q: How can EHR help data quality?

A: One of the shortcomings of the current RPMS system is that most clinical data only get into the system after being abstracted and manually entered, sometimes weeks after an encounter takes place. In addition, there are so many expectations of providers in terms of types of data to document, and many different forms on which to document them. EHR does not necessarily reduce the data requirements, but provides a system in which required data elements are more obvious and easier to document. Since providers will be directly responsible for most data entry, and will be able to immediately see and use the data they enter (such as problem lists), it is expected that the sense of ownership that this produces will lead to better and more complete data.

[back to top of page]

Q: Can EHR help with risk management?

A: There is evidence that use of electronic medical records can reduce the costs associated with tort claims and malpractice judgments. It is intuitive that if EHR improves patient safety through provider order entry and clinical decision support, fewer tort claims will result. Just as important is the fact that most malpractice claims, settlements, and judgments occur because the clinical documentation is inadequate to explain or justify the clinical decisions and care provided to the patient. Cases that go to trial tend to be those that are poorly documented. Private sector malpractice insurers often offer discounts to practices using electronic records because these practices have lower claim costs.

[back to top of page]

Q: How do we evaluate whether EHR is making a difference at our facility?

A: The impact of EHR is measured through a set of standard metrics created to assess the impact of the electronic health record project on the areas of patient care, business practices, provider productivity and patient education. A set of standard indicators will be collected by each site and trended both locally and nationally. These indicators will be used as part of the facilities and national Electronic Health Records quality improvement process.

[back to top of page]

Q: Will our clinicians be more productive?

A: Initially, the learning curve for use of EHR is expected to be fairly steep. When clinicians first begin using EHR for order entry and note authoring, it will take them longer to see patients. The decrease may be as much as thirty percent at first, and facilities must be prepared for this. However, time saved by direct entry of orders and by not having to search for information will soon begin to reverse the productivity impact. This impact can be reduced further if the facility provides adequate support and training for providers. Eventually, providers will be able to document both more thoroughly and more rapidly on standardized documentation templates than previously possible by handwriting.

[back to top of page]

Q: I can't type. What am I supposed to do?

A: Many potential users of EHR, regardless of role or training level, are anxious about using the application if it requires them to type. This is particularly common among people in the second half of their careers, who may not have grown up using keyboards for education or recreation. This is a substantial barrier to EHR implementation, and it may be an invisible barrier; staff may not be willing to admit that they cannot type, and may resist EHR for other reasons.

It may be necessary for facilities to explore the typing issue with EHR users and provide specific training. This can be done through group keyboarding instruction, but an economical, unobtrusive, and very effective alternative is simply to purchase a commercial CD-ROM based typing tutor and allow staff to practice and build their skills on their own time. Another option to consider is voice recognition dictation software, which can integrate with the RPMS-EHR.

[back to top of page]

Q: Our facility depends on third party revenues to survive. What effect will EHR have on billing?

A: EHR offers several features that should have positive effects on third party collections. Most importantly, the ability to standardize the documentation of encounters through templates will encourage providers to document key elements more thoroughly. This, in turn, should permit evaluation and management (E&M) coding to more appropriately reflect the actual level of service provided. Evidence from the private sector suggests that EHR documentation typically justifies a one-level increase in E&M coding over

handwritten notes.

Because EHR includes unlimited ability to customize charge tickets (superbills) for specific clinics and providers, charge capture for all provided services is enhanced. Entry of other billable services, such as patient education and injury data, is also facilitated. This information is entered directly by clinicians, nurses, and other staff. At the conclusion of a visit, all necessary information for generating an invoice is already in PCC, so billing can be done immediately. Faster billing means faster, and potentially improved, collections. In addition, having more efficient billing processes means that staff will have more time to research and resubmit denied and aged claims.

One negative effect that EHR can have on revenue, at least in the short term, is a decrease in provider productivity for a few weeks or months while providers are learning to use the system. There is little doubt that it takes longer to see a patient, to enter orders, and to write encounter notes, when working in the electronic environment. The reduction in productivity may be 25-30 percent initially, though private sector evidence suggests it eventually returns to or exceeds pre-EHR levels. The positive trade-offs in patient safety, billing, and other efficiencies are expected to compensate for the modest and transient loss in productivity.

[back to top of page]

Q: We have a commercial billing package. Will EHR work with that?

A: The RPMS billing application draws data from the Patient Care Component (PCC), to populate fields necessary for billing (ICD, CPT, laboratory codes, etc.). If the commercial billing application looks to those same data, there is no reason why it should not work. Billing applications that bypass PCC or require a separate route for entry of billing information may not work with EHR unless specific interfaces are built.

[back to top of page]

Q: Will we need to hire more staff?

A: The only new position recommended by the EHR Program, at least for moderate or large sites, is the Clinical Application Coordinator (CAC). The rationale for this position is described in another FAQ. Larger facilities may need more than one CAC, whereas very small clinics might be able to get by with a part time or shared CAC, or a clinical super-user.

It is possible, depending on the amount of new equipment purchased for EHR, that a facility would need an additional person (or more) to maintain this equipment. The key point is that EHR is a clinical system, meaning that it must be working during all hours of patient care. Somebody has to be available to perform CAC duties (clinical support) and IT duties (technical support) at all times that patients are being served.

[back to top of page]

Q: Why do we need a Clinical Application Coordinator?

A: This is a very important issue regarding a critical function. The EHR Program feels very strongly about the need for users at any facility running EHR to have access to the skills of a Clinical Application Coordinator (CAC). This recommendation is based on experience at VHA facilities as well as in the private sector. The CAC is typically a health professional (usually a nurse) who is comfortable with computers and has strong interpersonal skills. The CAC knows the EHR application better than anyone else in the facility, and provides real time support for clinical users, ensuring uninterrupted patient care. Following is a sample listing of CAC duties:

- Preliminary EHR setup
- Coordination and optimization of all RPMS packages
- Primary training of users before initial EHR implementation
- Training for new users
- Training for updates and new EHR features
- Hand-holding for providers and other users during implementation
- Real-time support for providers and other staff during patient care
- Customization of TIU templates
- Customization of provider order sets
- Customization of GUI screen views
- Responsible for the ongoing roll-out of EHR in the facility

There are several options for providing these CAC functions to a facility and its users. The most effective way, and the method recommended for large clinics and hospitals, is to hire a full time CAC. Larger hospitals may require more than one, as the EHR application penetrates to all clinics and wards. At smaller facilities, a part time CAC with other assigned duties may be adequate, as long as it is assured that providers can receive the troubleshooting help they need at all times of patient care. Very small facilities still need all the described CAC functions, but may not need a person on site at all times. Additional models for provision of CAC functions would be for an Area Office to have an applications coordinator who supports multiple facilities, for several small sites to partner on a single shared position, or for a larger facility to agree to provide regional CAC support for a defined group of smaller partners. If no CAC is available for real time service to providers, it is strongly recommended that a local "super user", typically a provider, be designated and given both training and time sufficient to provide troubleshooting assistance to his or her colleagues.

[back to top of page]

Q: What kind of technical equipment do we need to run EHR?

A: The basic consideration in answering the equipment question is that every staff member who needs to read or add to the medical record needs access to it. This means that they must have a Windows computer available wherever and whenever they need to see the record. For the most part this will mean computer access in every examination room, at every provider's desk, at all nursing work areas, and at all other points of patient care or consultation. This might be accomplished by fixed desktop computers or by mobile workstations.

Since these computers will have to retrieve RPMS patient data, the facility needs to have a reliable network connecting all of the above locations. This network should also have a

high-speed Internet connection, to facilitate the clinical decision support functions of EHR.

Obviously, there has to be an RPMS server (computer) available. Most facilities have their RPMS server on site, while some store RPMS data remotely. Either is acceptable; the important consideration is whether the server and the communication link to it are powerful enough and fast enough to handle the increased workload created by EHR users. For most facilities this should not be a problem, but some with very old RPMS computers will need to upgrade them. No additional servers are required to run the EHR application. VueCentric runs on each of the client (user) computers. It also loads itself the first time it is used on a particular computer, and upgrades itself whenever necessary, so the amount of extra work required of site managers is limited.

Although the hardware requirements to run EHR are considerable, and this hardware can be expensive, certain facts should be kept in mind. First, the vast majority of I/T/U facilities already have most of this equipment in place. There are many other reasons besides EHR to have a robust network, Internet access for clinicians, and computer workstations throughout the facility. For many sites, transition to EHR will only necessitate the addition of computers to exam rooms, or perhaps installation of a wireless network for use with tablet or laptop computers. The EHR Program has prepared a basic set of hardware infrastructure recommendations, which may be downloaded here [DOC].

[back to top of page]

Q: What type of computers should we use in exam rooms?

A: Each has positive and negative aspects. Personal computers are clearly less expensive, both in terms of the necessary network cabling and the cost for the PC itself. However, PC's take up a lot of space in exam rooms, and since their location is fixed, more have to be purchased to equip every room. One advantage to the PC in the exam room is that the nurse can use it for information entry while the provider is occupied elsewhere.

As wireless technology and security improve, more facilities are choosing this option. Wireless-enabled laptop or tablet computers have the same computing capacity as PC's, but are lightweight and portable. Providers can carry them from room to room (or move them on mobile carts), and can keep a patient encounter open when leaving the room, to finish it in the office or elsewhere. The cost for a wireless network exceeds that of a wired network, and tablets can cost 2-3 times as much as a PC. However, not as many wireless units are required in order for each provider to have access to one. Other limitations of tablets are battery life (which can be ameliorated with extra batteries or space-saving docking stations in exam rooms), damage from dropping, and loss or theft (which does not translate to a security breach because no patient data is stored on the tablet).

[back to top of page]

Q: Can I get to the EHR from home or elsewhere?

A: Technically, remote access to EHR is certainly possible. All that is required is a broadband (high speed) Internet connection and virtual private network (VPN) access to your facility's database. Whether or not this is permitted at a particular facility will be a decision made jointly by your Area Security Officer and OIT. Because VPN gives users

access to the entire IHS network, and only so many VPN accounts can be accommodated, this access will be strictly controlled and closely monitored. A clear need for access in the interest of patient care must be demonstrated, and facilities will be responsible for appropriateness of use by their staff. As experience is gained and network capacity is increased, it is likely that remote access policies will be liberalized.

[back to top of page]

Q: What do we do when the system crashes?

A: Certainly, every effort must be made to avoid system down time, but it will happen. Experienced users of RPMS know that it is robust and reliable, and software crashes are rare. Hardware crashes due to power outages and equipment failure are more common, and these risks are mitigated by the use of isolated power systems and redundant servers.

Having a Continuity of Operations Plan in place to deal with these events is essential to continuing patient care when this happens. Each facility will have its own approach, but typically this will involve utilizing those parts of the electronic system that still work and resorting to paper-based documentation for the rest. Once the system is restored, the plan should include a means of repopulating the electronic system with information collected during the outage. Depending on policy, paper records generated during system outages might need to be retained as original documents, although scanned facsimiles may prove to be sufficient for this purpose. In either case, key information such as diagnoses and services should be abstracted for the EHR.

[back to top of page]

Q: We want EHR at our facility. Can you send us a CD so we can install and use it?

A: It would be nice if it were so easy. Implementation of EHR is a complex process that affects every department and virtually every employee in an organization. Preparation has to be intentional and systematic, and must be driven by top administrative and clinical leadership, not by the IT department or a single enthusiastic clinician. Software installation and training are also complex, incremental, and require external support from OIT and the EHR Program. Facilities interested in EHR are encouraged to review the entire website and linked documents, and contact Program leadership for more information.

[back to top of page]

Q: What should our facility do to prepare for EHR?

A: The IHS EHR Program has developed a number of documents designed to assist facilities with preparation for EHR. These are linked to the "Preparing for EHR" page of our website. Facilities interested in implementing EHR should also contact their Area Clinical Application Coordinator for assistance.

[back to top of page]

Q: How long will it take our facility to implement EHR?

A: EHR implementation is not a fast process, but the actual amount of time it will take a facility to implement EHR depends on a variety of factors including:

- Size of facility
- Services offered (e.g. Pharmacy, Lab, Radiology)
- Current state of RPMS packages (are versions, patches up to date?)
- Utilization of RPMS packages (are your RPMS packages optimized?)
- Amount of administrative support
- Amount of staff time dedicated to EHR implementation

A good estimate for most facilities is that it takes approximately 12-18 months from the time the decision is made to implement EHR until the first provider is documenting all aspects of a patient visit in the EHR. You can view a more detailed EHR implementation timeline here.