Ergonomic Hardware Solutions & Recommendations For the Centricity EMR

DRAFT - *FOR REVIEW ONLY*

CHA/Advocare
Ergonomics Work Team

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INTRODUCTION

The GE Centricity Electronic Medical Record (EMR) application, an electronic equivalent of the paper chart which physicians have been working with, is in the process of being implemented to all of Continuum Health Alliance's (CHA's) physician practice clients. The implementation of the EMR has an enormous impact on physician practice workflow impacting the delivery of patient care, the communication, and documentation of the medical care by the physician and clinical care team.

The EMR implementation represents a significant change in current processes and procedures for all providers and office staff. Due to the magnitude of the change, careful consideration must be made to ensure that providers can still perform their primary objective: providing quality care efficiently and effectively to their patients can be achieved.

Bottom Line: ***Physicians need an EMR to facilitate efficient workflows without negative effectives on quality, patient communication and privacy.***

BACKGROUND

Continuum Health Alliance (CHA) developed an Ergonomics Work Team consisting of: Advocare physicians, CHA EMR project staff (IT, Training, Operations) and CHA Executives. The Work Team met weekly for 14 weeks developing the following deliverables and recommendations (many contained within this whitepaper):

1.) A list of hardware recommendations;
2.) Ergonomic tips and solutions;
3.) Recommended placement of hardware within the care centers;
4.) Sample exam room diagrams that depict efficient exam room set-up;
5.) A Preview "showing" of the hardware devices (to the Tier II team);
6.) Development of an "Ergonomics Room" displaying computers, mounting arms, and other related equipment;
7.) Care Center Implementation Plan;
8.) Hardware Evaluation and Recommendation Document and
9.) Supplemental Ergonomics Articles

Key Considerations:

The main point to be taken from the following recommendations is the understanding that there is no single solution that works for all users of the EMR. Individual preferences, familiarity and experience with computers, the different job functions within a care center, and the physical environment of the care center all have an impact on the final solution for each practice. The choice of hardware for a care center will be a mix of the different types of devices, many of which have been tested by the Ergonomic work team.

SUMMARY OF RECOMMENDATIONS

Several computer hardware solutions and other accessories were evaluated by the work team, and many items were eliminated (see Appendix C) due to various factors (cost, screen resolution, size etc.).

HARDWARE/COMPUTER DEVICES

1. Desktop Workstation:

The installation of a desktop with a 19" monitor (if space permitting) will provide the optimal experience. Performance, stability, cost, usability, and physical comfort of the end user are directly addressed with the desktop device.

2. Laptop/Tablet:

Where there are physical limitations which prevent the desktop solution from being a viable option, such as exam rooms or other small workspaces, the work team's recommendation is the use of a standard laptop with a minimum of a 14 inch screen. While not entirely ergonomically optimal, the laptop's compact features combined with the performance, cost, and durability provides an excellent way of remaining mobile

3. Apple iPad:

It is common practice for non-physician providers, such as MA's or LPN's, to enter a limited amount of information into the EMR, the Apple iPad may be optimal for entering vital signs, and a brief summary of the reason for the patient visit (chief complaint). This device is very light-weight, extremely mobile, and inexpensive with excellent screen resolution.

Placement of Computers:

Access to the EMR application will is not limited to the examination room. Therefore, care center staff should consider all the locations that a provider may need to access or enter information into the EMR: Nursing/MA Stations, Draw stations, prep areas, physician offices, Front Desks, home office etc.

Ergonomics Summary:

The Five 'Rights' of Ergonomics

Repetitive use over a long period of time can lead to injuries that can impact a clinician's ability to perform their primary job function. Proper positioning at the onset is extremely important and can avoid this problem from surfacing.

1. Right number of computers
2. Right location of computer

3. Right height adjustments
4. Right size monitor
5. Right resolution

<u>For optimal ergonomics use of the equipment, the following items must be considered:</u>

-

- A continuous flat surface from the keyboard to the mouse (desktop computers)
- Use of gel-based wrist-rest is necessary in order to provide the maximum wrist and arm support
- Monitors should be at eye level to the clinician to limit the amount of neck strain
- If using a wall mounted solution, the arrangement of the keyboard mount and the monitor mount must be adjustable to accommodate different clinicians.
- Laptop solutions are best used when placed on a flat surface to allow for the best use of posture
- In all situations, intermixing use of the computer with breaks to examine the patient will prevent any repetitive injury due to excessive computer use

<u>Related Equipment:</u>
Each Care Center will also need to consider the purchase and placement of additional hardware/equipment such as:

- General use Printers
- Scanners

- Prescription Printers
- Network Drops
- Electrical Outlets
- Mounting Hardware

HARDWARE PRO's and CON's

Desktops

Desktop workstations need a surface to be placed upon, but, with the small size of some examination rooms, this may not be practical. Wall arms are the ideal choice for these situations, and consideration must be taken in to account with regard to placement. However, it is much harder to move a fixed workstation than a mobile device such as a laptop.

Laptops

While laptops are mobile and move with the physician, a flat surface between the patient and the clinician is an absolute necessity. As the hardware connects to the network wirelessly, a wireless infrastructure must be built out at the care center.

General Exceptions

Certain locations in a care center will never be conducive to a desktop workstation due to room size, already crowded conditions with regard to other equipment or other extenuating factors. Additionally, due to the job function, the requirements for equipment may not be as great. There is no single solution that will work across all care centers, but, there is a single solution for each individual care center. That solution will be made up of a mix of hardware devices that aid the workflow and enable the clinicians to provide the highest quality of care.

Locations Outside of the Examination Room

The initial focus of the work team had been on the physician's interaction with the patient while using the EMR. However, the work team refocused on how the chart is accessed by all staff members. In a paperless model, all access to the patient's chart is done via the EMR. Hence, any location where the chart would normally be accessed, such as a nursing station, a doctor's professional office space, or in a room designed for collecting vitals, computer access must be available to continue to perform these necessary functions.

Hardware Considerations

The Centricity EMR, as implemented at CHA, is extremely versatile in that it can run effectively ona large amount of hardware. With the realization that every examination room is different, every practitioner has different preferences, and each specialty has different requirements, a selection of hardware choices that have been put through rigorous analysis by the work team members.

Desktops

A standard desktop solution allows for a familiar and easily supported method for accessing the EMR. While more bulky than other solutions, desktops offer the greatest variety of configurations and options while providing solid performance

Laptops

Laptops provide a small form factor, fully functional PC in a self-contained mobile solution to access the EMR. Its full functionality allows for the system to be used for other purposes.

Tablets

Tablet PC's, like laptops, are fully functional PC's with specific features geared towards an EMR application. They are fully mobile, lightweight, and offer a wireless solution similar to a PDA, but with the screen and performance of a laptop PC. Input is available in two distinct forms: keyboard and mouse, and a touch screen with a stylus.

Mobile Workstations (COWs)

Going under a variety of names, Computers on Wheels (COW), Workstations on Wheels (WOW), mobile workstations are extensions of the desktop or laptop solution. They provide a method for combining computer hardware with a mobile piece of furniture where the end result is a self contained dedicated mobile solution for EMR use.

Smartphones / PDAs

With the advent and proliferation of Smartphone technology, physicians now have greater access to electronic information.With the Centricity EMR, practitioners now have the ability to access patient charts securely in a read-only fashion via a smartphone from anywhere Although the screen size of a Smartphone is not conducive to the everyday workings of the EMR, it does provide an alternate avenue to the patient's information.

Hardware Pros and Cons

Each hardware solution offers both positive and negative attributes in how a physician interacts with both the EMR and the patient. Each practitioner interacts with the patient in their own personalized way. Since there is no single solution for everyone, a full understanding of the attributes of the available hardware allows for the practitioner to choose the solution that best fits their personal requirements.

Desktops

Pros:

- Durable
- Customizable
- Variety of input devices (keyboards, touchscreens, mice)
- Variety of output devices (monitor sizes, wall mounts, projectors)
- Inexpensive to support and repair

Cons:

- Fixed installation location with limited flexibility.
- Cables/Wiring may be accessible to curious patients
- Poor typing skills may slow up the workflow
- Potentially noisy components may cause a distraction to the patient or practitioner.
- May require additional furniture
- Consumes valuable exam room space.

Laptops

Pros:

- Easy mobility – carry from room to room / around care center
- Wireless. No cables / cords to struggle with
- Relatively light weight
- Equal performance to a desktop
- Completely integrated solution – keyboard / mouse / monitor
- Can be used while standing or sitting.

Cons:

- More expensive than a desktop
- Battery charge must be managed and maintained
- Fragile and prone to damage
- Expensive to repair.
- Limited expansion / upgrade options
- Fixed / limited screen size
- Complicated to secure – subject to theft or loss
- Weak signal or signal interference may cause wireless connection to the EMR to be lost.
- Requires additional infrastructure

Tablets

Pros:

- Compact and very easy to transport

- Wireless. No cables / cords to struggle with
- Extremely quiet and less distracting to the patient.
- Small form factor and very lightweight
- Energy efficient with long battery life
- Can be used while standing or sitting.
- Touch screen

Cons:

- Expensive solution
- Expensive to repair.
- Limited expansion / upgrade options
- Fixed / limited screen size
- Battery charge must be managed and maintained
- Virtual keyboards and the use of a pen present a learning curve issue and may initially slow up the workflow
- Complicated to secure
- Subject to theft or loss
- Fragile and more prone to damage
- Requires additional infrastructure
- Weak signal or signal interference may cause wireless connection to the EMR to be lost.

Computers On Wheels (COWs)

Pros:

- Can be moved in and out of rooms, and it can move with the practitioner
- Ergonomically adjustable to the practitioner's height for sitting or standing positions
- Works with either a desktop or laptop solution
- Cart can contain additional storage for multiple types of supplies (medical / office)

Cons:

- Additional expense above and beyond the computer hardware
- Heavy to push or pull
- Use of additional space in the examination room.
- If wireless:
    - Wireless signal loss will result in a loss of connectivity to the EMR.
    - Battery charge must be managed and maintained
- If Wired
  Cable management must be consideredSystem boot time may cause a delay.

Hardware and Connectivity

Considerations must be taken to mitigate any interruption caused by a potential failure in any of the components to enable constant and consistent access to the patient's records via the Centricity EMR. While every effort is made to increase the reliability of the hardware items, such as the computer hardware and the internet connection, the reality is that every piece has a possibility of failing.

Spare Equipment

Extra hardware is a necessity in order to maintain uninterrupted functionality of the EMR and to continue seeing patients.

It is the recommendation of the work team that completely configured hardware, such as a desktop workstation or a tablet, be kept on site in the event of an equipment failure. The spare equipment may be repurposed from another location in the office, such as a second front desk system, but this must be documented.

With regard to battery operated equipment, such as laptops or tablets, spare batteries and battery charging locations are critical to allow for the seamless use of the equipment from one work shift to another.

Interruption in Internet Service

Utilizing a custom solution designed specifically for the situation where access to the EMR is not possible due to any number of catastrophic unforeseen reasons, access to a customized version of the chart summary document will be provided as a contingency to allow for a clinician to continue to provide quality care.
The chart summary will be securely placed on a designated computer system at the care center, and the content will be updated hourly for all patients.

Related Equipment

The access to the EMR is provided electronically, but it takes more than a computer to make it functional. Desktop computers require electrical power and networking, monitors need to be placed somewhere, laptops and tablets require wireless access, and printers and scanners need flat surfaces to be placed upon.

At every location, space is always at a premium, primarily examination rooms. It is quite common to have a multitude of equipment already in place within an examination room, and the addition of a computer in to the environment adds an additional layer of complexity.

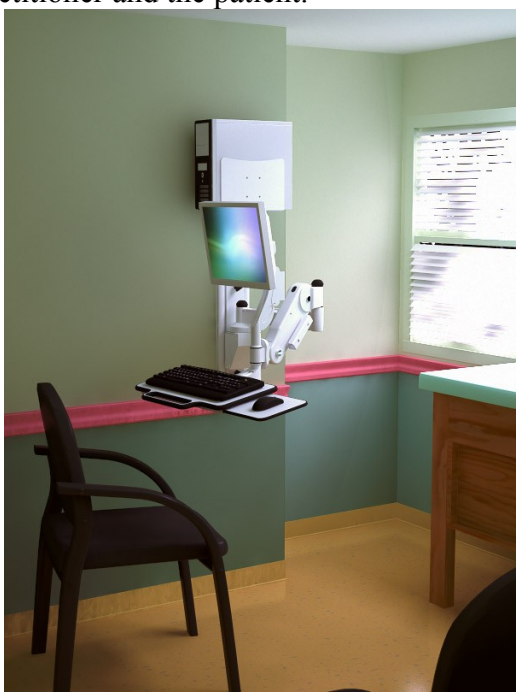
Focusing on the desktop solution, the work team proposes three recommended methods for introducing the desktop hardware efficiently in to the tight space of the examination room without adding any unnecessary clutter and still maintaining a professional appearance.

Base Cabinets

Many examination rooms make use of most, if not all, of the outer wall space with cabinetry. In situations where counter space is available and in the appropriate location, placing desktop hardware at that location is a quick and easy solution without the added expense of additional equipment or furniture.

Wall Arms

Wall extension arms eliminate the need for taking away valuable counter space from the examination room. Wall arms can be placed on any open wall space, extended out from the wall to a comfortable position, and retracted back to the wall when no longer needed. Wall extension arms allow for the placement of the computer equipment in an optimal location between the practitioner and the patient.



Wall Mounts

Wall mounts are very compact kiosk-style systems with the computer components carefully hidden within the stylish cabinet. When not in use, the components can be pushed back in to the cabinet and the doors shut. Additionally, the doors can be locked to prevent unwanted access.

Due to their design, positioning is not ideal as; in some instances it forces the clinician to have their back to the patient.

PLACEMENT IN THE EXAM ROOM

Examination rooms are generally rectangular, but vary greatly in both dimensions and purpose.

An exam-room computer has the potential to shift the clinician's attention and involvement away from the patient to the computer. Three different ways clinicians can maintain communication during computer use are:

1.) Maintaining conversation with the patient while looking at the computer screen or typing.
2.) Intermittent eye contact with the patient during computer use.
3.) Positioning the computing equipment such that the clinician is facing the patient.

The physical location of the computer, monitor, examination table, and the clinician's chair all have an impact on the interaction with the patient. Attention must be focused on the ability to alternate between attention to the computer and attention to the patient in order to facilitate communication between the clinician and the patient.

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INTERACTING WITH THE PATIENT

The greatest difficulty with implementing an EMR is to maintain a good level of interaction with the patient. Where there was once a paper chart and a pen, there is now a desktop computer and a keyboard, or a laptop, displaying menus, prompting questions, and requiring input. A large emphasis has been placed on following a 'less is more' attitude in design to facilitate optimized interactions with the computing hardware leaving more time for the examination. Over time, as clinicians further learn the product, their efficiency with the EMR will increase. However, from the start, the EMR is designed to minimize confusion and maintain focus on patient care.

Although a tendency exists for the clinician to focus on the computer monitor and follow its prompts, it should not drive the communication between the patient and the clinician as it can cause a sense of disorganization in the overall visit and potentially extend its length.

Maintaining eye contact with the patient and leaving the computer to the background is important throughout the entire visit. Informing the patient as to the purpose of the computer and its positive benefits, as well as explaining what the clinician is doing when at the computer, creates a perspective where great medical technology becomes equated to great medical care.

As a clinician, it is important to know when to push the computer screen to the side and focus on the patient. Making efficient use of the computer prior to, during, and after the visit will limit the impact the computing hardware has on the clinician during the time of the visit.

ERGONOMIC TIPS AND SUGGESTIONS

Mobile computer monitors

For desktop solutions, a fixed monitor solution can be obtrusive and distracting to both the clinician and the patient. Mounted on a movable arm, a monitor can be adjusted to the height of the clinician and to the proper viewing angle to interact with the patient. It also allows for the monitor to be moved out of the way entirely when it is unused.

Tablets/Laptops

Mobile devices, such as tablets and laptops, provide the clinician with the flexibility to easily access the EMR from any location, allowing the clinician to modify the placement within the examination room based upon the needs at the time. Fixed devices require the patient and the clinician to always be in the same general location, whereas a mobile device can enable both parties to move about the examination room without negatively impacting the clinician's ability to use and access the EMR.

Basic Computer Skills

As the migration from paper charts to an electronic solution takes hold, clinicians are forced to interoperate with a computer in order to complete their daily tasks. Simple computer skills are mandatory in order to remain effective.

Focus on the Patient

The EMR can be overwhelming at times for the clinician. Avoid focusing on the functionality of the EMR rather than the purpose of the patient's visit.

Inform the Patient

Every step that the clinician takes with the EMR is a new experience. Every step is new. Keeping the patient informed as to the progress during the exam keeps the conversation and information flowing.

The considerations and analysis of each component of the implementation of the EMR application intersect with the others. In the case of Ergonomics, the physical ergonomic considerations overlap with the ergonomics of the content (templates) of the EMR in different ways depending upon the hardware that is used.

A strong focus has been maintained towards a 'less is more' philosophy, when appropriate, with the emphasis on the content design towards the information needed for proper decision making. The more clicks, typing, pop-ups, and other requests, can

impact the workflow of the clinician, detract from the patient experience, and require more effort on the clinician.

Look at Your Patient

This may seem obvious but, even with mobile screens some physicians tend to persistently stare at the computer monitor and the patient does not receive primary attention.

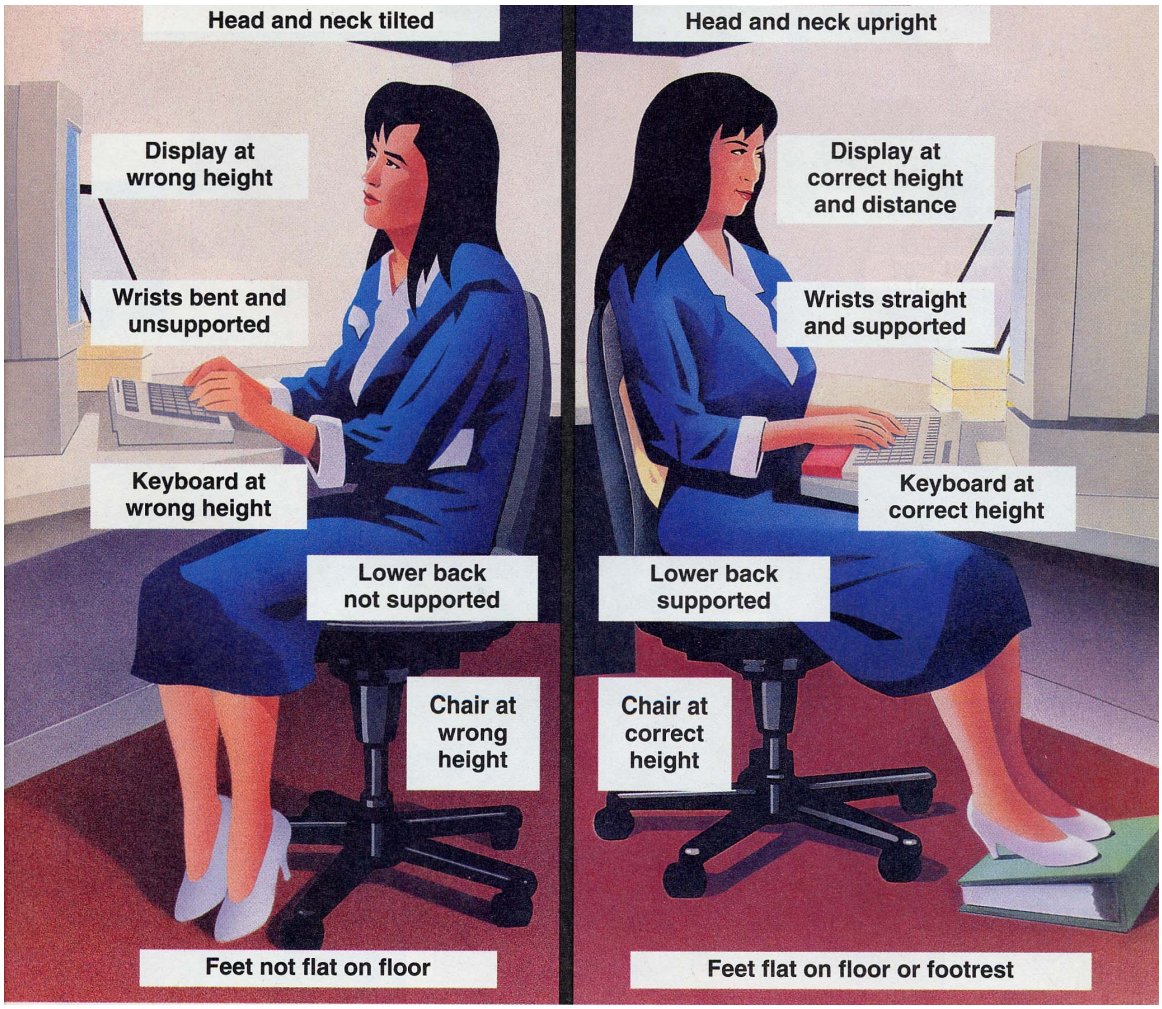
Screen Size & Resolution

A careful balance must be found between additional screen real estate for easier EMR usage and an obtrusive/distracting piece of computer equipment. The 19" flat screen monitor provides a minimal presentation of the Centricity EMR to the clinician while remaining less obtrusive than a larger screen while working with the patient.

Content/Template Information Density

The Centricity EMR minimizes the effect of 'cognitive load' by its attempts to be intuitive. The effort leads towards a more efficient experience for the clinician, reducing the situation where the clinician is forced to find particular items before proceeding with the examination or pausing the examination to search and find a key item.

Ergonomic Positioning



APPENDIX A: Supplemental Articles/Documentation

****ARTICLES DISTRIBUTE TO ERGO WORK TEAM MEMBERS TO BE ADDED****

Appendix B: Implementation Plan

EMR Client Hardware Implementation Plan

Activity with the client will go through four distinct phases before the site is certified for functionality of the Continuum EMR solution. The phases are: Site Survey, Procurement, Site Inspection, and Site Installation. Presence is required on the "Go Live" date for support purposes only.
The goal is to implement a technology solution specific to the practice that satisfies the requirements of the EMR, the needs of the practice, adds to the efficiency of the practice's workflow, and remains within the recommended guidelines.
All dates are built on a "T-minus" schedule, working backwards from the effective "Go Live" date of the practice.

Site Survey

An analysis of the site is required in order to determine the best recommended technology solution for the practice. Input from the practice representative is required in order for the entire process to be a success.

Task	Implementation Steps	Deliverable	Deadline	Resource
Information Gathering - Examination Room	Determine the number of examination rooms at the practice.	Produce a rough diagram of each room and a total count of rooms.		CHA Infrastructure Team, EMR Core Team
Examination Room Locations	For each examination rooms, working with the appropriate practice representative, determine where the equipment will be placed.	Define hardware placement. Identify additional hardware as needed, including mounting, electrical, and network.		CHA Infrastructure Team, Practice Representative
Alternate Locations	Based on the workflow, identify additional locations for computer placement.	Define hardware placement. Identify additional hardware as needed, including mounting, electrical, and network.		CHA Infrastructure Team, Practice Representative
Additional Infrastructure	Evaluate the estimated total number of additional hardware components	Additional switch hardware may be necessary depending on the number of new network devices.		CHA Infrastructure Team

Procurement

The procurement phase covers the analysis and purchase (by the client) of the additional hardware that is needed at the site to support the introduction of the technology requirement for the Centricity EMR.

Task	Implementation Steps	Deliverable	Deadline	Resource
Electrical Installation	Recommendation of an electrical vendor to the practice representative.	Working with the electrical contractor, identify placement of additional electrical outlets. Obtain quote and supply it to the Practice representative for purchase.		CHA Infrastructure Team, Practice Representative, Electrical Resource
Network Installation	Recommendation of a network wiring vendor	Identify placement for all network drops. Obtain quote from Network resource. Provide quote to practice representative for purchase.		CHA Infrastructure Team, Practice Representative, Network Resource
Mounting / Cabinet Hardware (optional)	Recommendation of mounting or placement solutions.	Provide quote for any additional or specialized mounting hardware.		EMR Core Team
Infrastructure Hardware	If needed, obtain recommended infrastructure hardware pricing.	Provide hardware quote to practice representative for purchase		CHA Infrastructure Team
EMR Hardware	Work with Practice Representative to select technology hardware for all locations	Provide quote for all EMR Hardware.		CHA Infrastructure Team, Practice Representative

Site Inspection

A quick visit to the site is needed to verify that all of the infrastructure components have been successfully put in to place. With this completed, the site is fully prepared for the EMR Client Hardware installation.

Task	Implementation Steps	Deliverable	Deadline	Resource
Examination Room Verification	Verify the necessary hardware is present to support the technology.	Sign Off by CHA Infrastructure Team		CHA Infrastructure Team
Alternate Location Verification	Verify the necessary hardware is present to support the technology.	Sign Off by CHA Infrastructure Team		CHA Infrastructure Team
Infrastructure Verification	All necessary network components are in place, functioning, and capable of supporting the additional technology	Sign Off by CHA Infrastructure Team		CHA Infrastructure Team

Site Installation

All computer hardware ordered by the practice will get installed if all of the previous steps have been successful.

Task	Implementation Steps	Deliverable	Deadline	Resource
Examination Room Installation	Install computer hardware in the appropriate location in each examination room. Verify access to the EMR.	Sign off by CHA Infrastructure Team, Practice Representative		CHA Infrastructure Team, Practice Representative
Alternate Location Verification	Install computer hardware in the appropriate location in each examination room. Verify access to the EMR.	Sign off by CHA Infrastructure Team, Practice Representative		CHA Infrastructure Team, Practice Representative
Existing Hardware Verification	Verify existing technology has access to the EMR.	Sign off by CHA Infrastructure Team, Practice Representative		CHA Infrastructure Team, Practice Representative
Additional Hardware Verification **(optional)**	Verify additional technology components (battery chargers, wireless devices, etc) are installed and functioning.	Sign off by CHA Infrastructure Team, Practice Representative		CHA Infrastructure Team, Practice Representative

Appendix C: Hardware Solutions

Computer Hardware

Item	Type	Cost*	Rating	Weight	Battery	Warranty	Special Features
Motion C5	Tablet	$2,349		3.3lbs	3.7hrs	3yr	$350 docking station; Fingerprint reader;
Toshiba M750	Tablet	$1,832		4.7lbs	5.15hrs	TBD	
Fujitsu Lifebook T4410	Tablet	$1,800		4.5lbs	5.4hrs	3yr	Camera; 12" Screen; Spill Resistant; Fingerprint Reader
Lenovo Ideapad S10-3T	Tablet	$529		2.7lbs	4hrs	1yr	Camera; Underpowered for Dragon Use
HP 2710p	Tablet	$1,995		3.7lbs	5hrs	3yr	
Apple iPad	Tablet	$499		1.5lbs	10hrs	1yr	
Dell 380 SFF	Desktop	$569		N/A	N/A	1yr	
Dell Optiplex	Desktop	$350		N/A	N/A	1yr	
Dell 5410	Laptop	$756		5.6lbs	~4hrs	1yr	
Dell 6510	Laptop	$1,010		4.26lbs	~4hrs	1yr	

Item	Type	Cost	Rating	PPM	Imaging	Warranty	Special Features
Fujitsu FI-5110	Scanner	$760		40	Double	3yr	Front Desk Use
Fujitsu FI-6130	Scanner	$900		90	Double	3yr	Back Office Use (Higher Volume)
Kodak I1220	Scanner	$850		35	Double	3yr	Integrated "Perfect Page" software; drop ship replacement

Item	Type	Cost
HP 19" Standard	Monitor	$109
Acer 22" Widescreen	Monitor	$179
HP 21.5" Touchscreen	Monitor	$279

Rating	Specification
1	Unacceptable Performance / Quality
2	Poor Performance / Quality
3	Acceptable Performance / Quality
4	Very Good Performance / Quality
5	Exceptional Performance / Quality

Desktop Mounting Hardware

Item	Type	Cost*	Rating	Comments/Special Features
Howard Medical	COW	$4,000		Expensive; Heavy; Potential difficulty moving in/out of exam rooms
AFC Pole Cart	COW	TBD		
VSS Medical Pole Cart	COW	TBD		
AFC 7809	Wall Arm	$623		Completely customizable w/ potential cost savings; local supplier
AFC 7808	Wall Arm	$695		Completely customizable w/ potential cost savings; local supplier
VSS Medical - Ultra 390	Wall Arm	$540		
VSS Medical - Elite	Wall Arm	$780		
VSS Medical - MD18	Wall Arm	$600		Overall reach would not span an 18" cabinet
VSS Medical - RN	Wall Arm	TBD		
Humanscale - V7	Wall Arm	$750		
AFC I-Center ICNTR3050	Wall Mount	TBD		Completely customizable w/ potential cost savings; local supplier

Unacceptable Performance / Quality
Poor Performance / Quality
Acceptable Performance / Quality
Very Good Performance / Quality
Exceptional Performance / Quality

Accessories

Item	Type	Cost*	Rating	Comments/Special Features
Dragon Medical Enterprise	Software	$250		$1500 with Clinically Speaking; $350 microphone
Dedicated Power	Construction	~$225		
Hardwired Network	Construction	~$125		
Freedom Saddle Seat	Chair	$250		Stool; On Wheels; Anti-bacterial
Different World Chair	Chair	$740		Mesh back task chair
Standard Wired Keyboard	Accessory	$10		
Ergonomic Keyboard	Accessory	$40		Consumes additional desk space
Wired Optical Mouse	Accessory	$10		
Topaz Signature Pad	Accessory	$220		Model # T-S261-KHSB

Rating	Specification
1	Unacceptable Performance / Quality
2	Poor Performance / Quality
3	Acceptable Performance / Quality
4	Very Good Performance / Quality
5	Exceptional Performance / Quality

Master Evaluation List

Item	Type	Cost*	Comments/Special Features
Motion C5	Tablet	$2,349	$350 docking station; Fingerprint reader;
Toshiba M750	Tablet	$1,832	Screen exhibited too much glare under the best of conditions to be usable
Fujitsu Lifebook T5010	Tablet	$1,920	Camera; 14.1" Screen; Spill Resistant; Fingerprint Reader
Fujitsu Lifebook T4410	Tablet	$1,800	Camera; 12" Screen; Newer Model; Spill Resistant; Fingerprint Reader
Lenovo Ideapad S10-3T	Tablet	$529	Camera; Underpowered for Dragon Use
HP 2710p	Tablet	$1,995	
Apple iPad	Tablet	$499	
Dell Optiplex	Desktop	$350	
Dell 380 SFF	Desktop	$569	
HP 19" Standard	Monitor	$109	
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Dragon Medical Enterprise	Software	$250	$150 w/o Naturally Speaking; $350 microphone
Dedicated Power	Construction	~$225	
	Construction	~$12	