**7 Tablets or Tablet PCs Fit Use in Dentistry**

This article includes excerpts from an article by Anthony Vecchione in Information Week’s Healthcare 01/09/2012 and additional comments by Paul Rhodes

Where do Tablets and Tablet PCs fit into use by clinicians in healthcare?
Tech managers responsible for equipping medical personnel with equipment and applications see a big future for the use of computer tablets. According to a survey conducted by the Healthcare Information and Management Systems Society (HIMSS), 69% of individuals who are responsible for developing mobile technology policy said that tablet computers are part of their organizations' mobile technology strategy and 81% said that their proposed mobile technology policy would include tablets. Among the organizations that already provide mobile devices to clinicians to perform their day-to-day activities, 81% said that their proposed mobile technology policy would include tablets. Among the organizations that already provide mobile devices to clinicians to perform their day-to-day activities, tablets were used 57% of the time.

What is the difference between a Tablet and a Tablet PC?
**Tablets** are limited computers that allow you to access the internet (aka the Cloud.) Windows-based applications such as those that are running on your practice’s PC-based Client-Server network cannot be installed on them. Most Tablets run on the Apple iOS operating system or on Google’s Android operating system. Each of these have an array of applications specific to their operating system. To use applications that are running on your practices network Server, you would need to install an “RDP client” applet such as Wyse’s Pocket Cloud (<$10.00) which would allow you to access the Windows-based applications that are installed on your network server. They would appear on your Tablet’s display and you would operate them using the Tablet’s touch or digital pen capability or an external keyboard/mouse. Size makes a difference: most Tablets have a diagonal display measurement of approximately 7” or 10”. The iPad is 9.7”. Most Android Tablets are 10.1”. Both Tablet PC reviewed below have input by touch (finger) and digital pen for handwriting recognition and for digital signature on documents with the addition of the Topaz SigPlus applet in MS Word.

**Tablet PCs** are full blown Windows based personal computers, similar to your notebook or desktop computer. As such, they can run applications that have been built to operate in the Microsoft Windows environment. To run an application that is on your practices Window-based Client-Server network, you could install the application on a Tablet PC just as you would on any other Windows based computer. Or you could make use of Windows Remote Desktop Connectivity (aka Terminal Services) and connect to the application on your network’s server which would display on your Tablet PC screen. To you the end-user there would be no apparent difference. One advantage to a Tablet PC over a Tablet is that you can make use of digital signature capabilities for various healthcare documents (health questionnaires, HIPAA forms, informed consents, etc.) Size makes a difference: the Tablet PC’s shown below all have a display diagonal measurement of 12.1”–12.5”.

Can clinicians get along well in the clinical areas of a practice using just a Tablet or Tablet PC?
Certainly, some clinicians would be satisfied by the use of one of these mobile devices. Nurses in hospitals are carrying them around while they move from patient to patient, but even nurses find certain situations such as where you want to type more than a short statement where they will go to the desktop computer at the central station to do this typing. Generally, Tablets particularly and Tablet PCs without a docking station/keyboard are not the preferred way of inputting extensive typed information.

In an operating room such as in an OMS or Periodontal practice, it would be common for the doctor to want to view radiographs or periodontal chartings or output of vital signs from an NIBP monitor simultaneously. Under these circumstances having a conventional computer with a large display (19”–24”) along with a secondary
auxiliary display (Tablet or Tablet PC) would be preferable. Overall, I think it is best to consider a Tablet or Tablet PC as an auxiliary device that is strategically useful because of its ease of mobility.

APPLE IPAD

The Apple iPad features iOS, the company’s operating system, and an A5 chip with two cores, which allows for smooth multitasking and quick downloads. In the healthcare setting, some of the apps include medical imaging, medical inventory management, medical reference sites such as Blausen Human Atlas and Visual Dx mobile. Apple says the iPad 2 has nine times the graphics performance of its first-generation model, and the thin, light tablet has a 10-hour battery life.

Many clinicians find the iPad appealing because of the huge collection of medical apps available for the device. Pictured here is the iPad with a screenshot of an application from 3d4 Medical. Ed Note: This article came out over two months before the delivery of the new iPad 3. The very high resolution screen of the new iPad really enhances the appearance of radiographs.

iPad 3 specifications

Display: 9.7” with a resolution of 2048 x 1536. The Retina display is the highest resolution in a Tablet or Tablet PC thus far. (Comment: It is spectacular, but is it visibly any better than the Asus Transformer Prime 700?)

CPU: A5X processor which Apple claims to be superior to the quad-core Tegra 3 (???)
RAM: 1GB
Memory: 16GB, 32GB or 64GB
Input: primarily finger touch but can also use a broad faced “pen” (not very good for drawing or writing)
Battery life: 9 hrs
Weight: 1.5 lbs
Cameras: 5MP front and 2MP rear
Price: $499 - $699
Cons: lack of ports
Its predecessor, the Asus Transformer Prime 201t has been a blockbuster to the Android Tablet market but not without controversy: Particularly its GPS and WiFi performance has been in question. The new, yet to be released Infinity 700 has addressed these issues and sports a display with specifications that are very close to the display of the new Apple iPad. Plus, having worked with the accessory keyboard that Asus has built for these Tablets, I find this to be an exceptionally versatile Tablet when it comes to the mobile platform providing a reasonable means of typing while interviewing and facing a patient.

Display (T201 Prime): 10.1” widescreen format, 1920 x 1200 pixels with 600nits (brightness) for outdoor or bright room readability (The display on the Infinity 700 is closer to the “Retina” display on the New iPad.)

Platform: NVIDIA Tegra 3 Quad-core 1.6GHz CPU in Wi-Fi model

OS: Android 4.0 Ice Cream Sandwich

Memory: 1GB

Storage: 32GB or 64GB

Network: Wi-Fi or 3G/LTE

Connectivity: Wi-Fi 802.11 b/g/n, Bluetooth 2.1 + EDR and Bluetooth 4.0 LE

Input/Output: Pad, touch, digital pen, headphone/microphone audio jack, mini-HDMI port, micro-SD card reader, USB 2.0 and micro SD card reader on mobile docking station.

Cameras: 2MP on front and 8MP on rear surfaces

Battery Life: 10 hours

Weight: 20.67 ozs.

Comment: It is a very tight race between the new Apple iPad 3 and the new Asus Infinity 700 as to clarity of the display figures. This may or may not be visible to your eyes when compared side-by-side.

Price of Infinity with 32MB: Yet to be announced but estimated at about $750 (Release date: sometime this summer).
ASUS EEE B121 – A1 TABLET PC

Specifications

- Operating System: Windows 7 Professional 64-bit
- CPU: Intel Dual-Core i5 470UM (1.33GHz)
- Memory: 4GB DDR3-1333 SO-DIMM
- Display: 12.1” LED Backlight WXGA (1280 x 800) Screen (Capacitive and Electromagnetic Panel with AFFS) for both finger touch and digital pen input on screen surface
- Input/Output: Digitizer Pen, 2/USB 2.0, 2-in-1 Audio Jack, mini HDMI Port, Internal Microphone
- Storage: 64GB SSD
- Wireless Data Network: WLAN 802.11 b/g/n, and Bluetooth V3.0
- Web Camera: 2.0MP Camera (front)
- Input: touch, digital pen, on-screen keyboard, bundled external Bluetooth keyboard
- 2-in-1 Card Reader: SD & MMC
- Security: Trusted Platform Module, Computrace LoJack ready
- Battery: 34W/hr Polymer Battery (up to 4.5hrs & 2.4hrs for 1080p video)
- Power: Output: 19.5V 60W with USB Charging Port / Input: 100-240V AC, 50/60Hz Universal
- Dimensions: 12.28” x 8.16” x 0.67”
- Weight: 2.56 lbs.
- Price: $1,490.00

Touch typing on Windows on-screen keyboard
With its easy conversion from a desktop to tablet, the X220t Convertible ThinkPad Tablet from Lenovo is sold primarily to the company’s healthcare accounts. It contains a 2nd generation Intel Core processor, 23 hours of battery life, a 12.5-inch screen, and it weighs in at 2.9 lbs. Pictured here is the **X220t Convertible Tablet**. Ed Note: Lenovo designed this Tablet for business and professional use, not for the “consumer market.” Its larger screen size, long battery life and convertibility to a “desktop” make it very attractive for use by clinicians.

**Lenovo X220t Convertible Tablet-PC with Windows 7 Professional**

- CPU: i5 second generation Intel dual core processor
- Display: 12.5” widescreen display at 1366 x 768 with Gorilla Glass surface
- Input: touch, digital pen, keyboard, touchpad
- Memory: 4GB RAM
- Storage: 128 GB Solid State Drive
- Network: WiFi 802.11 b/g/n
- Battery life: 6 cell battery (4 hrs) can be piggy-backed for 9 hrs
- Weight with 6 cell battery: between 3-4 lbs
- Docking station is available as are other battery, CPU, SSD options

Price: $1,479.00
The Motion C5v tablet from Motion Computing has been specifically designed for the healthcare market. It is lightweight (3 pounds) and rugged, fully sealed, and compliant with infection control protocols. Marketed as a Mobile Clinical Assistant, the C5v uses one of a number of advanced Intel chips, up to the Intel Core i7 vPro processor. The tablet also offers extended battery life and advanced remote management capabilities.

A hot swap battery feature allows users to easily replace an existing battery with a charged battery while the tablet is operating, with no need to shut down or standby. Users can get up to four hours of work from one charged battery. The advanced remote management capabilities are linked to the Intel vPro processor. Its three remote management functions are anti-theft, which allows users to wipe a machine clean and/or encrypt it; remote management, which allows the end user to connect to the tablet without accessing the operating system, turns the device on remotely even though the actual unit is off, pushes updates through, and provides a communication channel to the server; and performance management, which can reduce the load on the battery and provide better performance.

Among its other features: optional barcode scanner and integrated RFID reader for patient ID, order entry, and medication administration. The tablet can be used at the patient bedside where physicians can review treatment options with patients. It can also be used for computerized physician order entry (CPOE) and electronic medication administration records.

Designed specifically for healthcare marketplace in conjunction with IntelHealth, the Motion C5v has a docking station, an optional front-facing digital camera for photographic or video documentation, handwriting recognition capabilities, and mobile broadband with enhanced GPS functionality. It is now available with a 30GB solid state drive. The company touts its durability, integrated features, and ergonomic design. It comes with Wi-Fi, Bluetooth wireless connectivity, and an optional mobile broadband with Gobi connectivity.
The Motion CL900 Tablet PC, with a 10” display is a durable, lightweight and powerfully equipped tablet PC that’s been purposefully designed, developed and built for mobile business. Enterprise-ready, the CL900 offers a blend of performance, integrated features and mobility. Every Motion CL900 Tablet PC comes out of the box ready to work. Weighing just 2.1 pounds (1), the CL900 helps every user to work faster, smarter and more effectively,

- At 2.1 lbs (1), it's small, light and very portable
- The display supports both "Touch" and "Pen" input
- 10.1” screen featuring HD 1366 X 768 resolution delivers bright visibility and the durability of Corning® Gorilla® Glass
- Up to a full day of battery life using Intel's next generation Atom™ Z670 (1.5 Ghz) processor running genuine Windows® 7 Professional
- Standard Solid State Drive (SSD) with 62GB
- On-board connectivity: USB, SD Slot, Audio In/Out, Video Out
- Wi-Fi, Bluetooth® wireless connectivity and optional WWAN mobile broadband (Gobi™ connectivity with GPS)
- Integrated cameras: Rear facing 3.0 MP documentation camera and front facing 1.3 MP web camera
- Docking Station with 3 USB ports and Ethernet connectivity
- One-year warranty protection - optional three-year and optional Accidental Damage Protection (ADP)
- Natural pen/speech and touch input

Configured with Windows 7 Professional, 2GB RAM & Keyboard Portfolio stand about $1,100
The **Motion J3500 Tablet PC** is a rugged and powerful slate tablet computer for field professionals across vertical markets that need a robust device for often harsh mobile work environments. Power through your workday with the J3500 rugged Tablet PC. **Now with up to the Intel® Core™ i7 vPro™ Processor**, the J3500 offers uncompromising levels of security, power and manageability.

Comment: This is the “big brother” in the MotionComputing PC family as to size, weight, power, versatility.

- At 3.6 lbs, **Rugged** without the extra weight; rubberized coating for shock dampening
- **Capacitive Dual Touch** display options for both finger and digitizer pen input
- Outdoor viewable 12.1” AFFS+ LED Backlight, wide screen available with **View Anywhere** and **Gorilla® Glass** for increased display damage resistance
- The J3500 Tablet PC has been awarded the **ENERGY STAR**
- Sealed design is easily cleaned and disinfected with **standard cleansers**
- Hot-swappable dual battery capability gives up to 7 hours of continuous use
- Optional **SSD** for extreme shock and vibration protection (capacities of 64GB & 128GB)
- Wi-Fi, optional Bluetooth® wireless connectivity and optional WWAN **mobile broadband** (Gobi™ connectivity)
- Optional Integrated **digital camera/video** available with illuminator light and image software
- **Battery Charger, FlexDock** and attachable, spill-resistant **Mobile Keyboard** (backward compatible with J3400 peripherals)
- One-year **warranty** protection - optional three-year and optional **Accidental Damage Protection (ADP)**
- Security features and integrated **smart card reader** available
- Natural pen/speech and touch input

**Price range:** depending on the accessories you select: $2,000 – 3,000